G31S Series

Motherboard

User's Manual

FOXCONN®

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Version:

User's Manual V1.0 for G31S Series motherboard.

Symbol description:

Caution : refers to important information that can help you to use motherboard better, and tells you how to avoid problems.

Warning : indicating a potential risk of hardware damage or physical injury may exist.

WEEE:

The use of this symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased this product.

More information:

If you want more information about our products, please visit Foxconn's website: http://www.foxconnchannel.com

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All images are for reference only, please refer to the physical motherboard for specific features.

Declaration of conformity

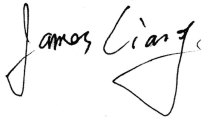
CE

HON HAI PRECISION INDUSTRY COMPANY LTD
66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

declares that the product
Motherboard G31S-K/G31S

is in conformity with
(reference to the specification under which conformity is declared in accordance with 89/336 EEC-EMC Directive)

- EN 55022:1998/A2: 2003 Limits and methods of measurements of radio disturbance characteristics of information technology equipment
- EN 61000-3-2/:2000 Electromagnetic compatibility (EMC)
  Part 3: Limits
  Section 2: Limits for harmonic current emissions (equipment input current <= 16A per phase)
- EN 61000-3-3/A1:2001 Electromagnetic compatibility (EMC)
  Part 3: Limits
  Section 2: Limits of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current <= 16A
- EN 55024/A2:2003 Information technology equipment-Immunity characteristics limits and methods of measurement

Signature : 

Place / Date : TAIPEI/2009

Printed Name : James Liang

Declaration of conformity

Trade Name:	FOXCONN
Model Name:	G31S-K/G31S
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd.
	Fullerton, CA 92835
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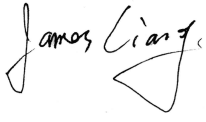
Equipment Classification:	FCC Class B Subassembly
Type of Product:	Motherboard
Manufacturer:	HON HAI PRECISION INDUSTRY COMPANY LTD
Address:	66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT, TAIPEI HSIEN, TAIWAN, R.O.C.

Supplementary Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Tested to comply with FCC standards.

Signature :  Date : 2009

Installation Precautions

- Electrostatic discharge (ESD) is the sudden and momentary electric current that flows between two objects at different electrical potentials. Normally it comes out as a spark which will quickly damage your electronic equipment. Please wear an electrostatic discharge (ESD) wrist strap when handling components such as a motherboard, CPU or memory.
- Ensure that the DC power supply is turned off before installing or removing CPU, memory, expansion cards or other peripherals. It is recommended to unplug the AC power cord from the power supply outlet. Failure to unplug the power supply cord may result in serious damage to your system.

Please carefully read the following procedures to install your computer :

- It is suggested to select high-quality, certified fans in order to avoid damage to the motherboard and CPU due to high temperature. Never turn on the computer if the CPU fan is not properly installed.
- We cannot guarantee that your system can operate normally when your CPU/Memory is overclocked. Normal operation depends on the overclocking capacity of your device.
- If there is any, when connecting USB, audio, 1394a, RS232 COM, IrDA or S/PDIF cables to the internal connectors on the motherboard, make sure their pinouts are matching with the connectors on the motherboard. Incorrect connections might damage the motherboard.
- When handling the motherboard, avoid touching any metal leads or connectors.
- If there is a PCI Express x16 graphics card installed in your system, we recommend using a 24-pin ATX power supply to get the best performance.
- Before turning on the power, please make sure the power supply AC input voltage setting has been configured to the local standard.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components. Also, make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

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Technical Support :

Support

Website :
http://www.foxconnchannel.com

Support Website :
http://www.foxconnsupport.com

Worldwide online contact Support :
http://www.foxconnchannel.com/support/online.aspx

CPU, Memory, VGA Compatibility Supporting Website :
http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

Thank you for buying Foxconn G31S Series motherboard. Foxconn products are engineered to maximize computing power, providing only what you need for break-through performance.

With advanced overclocking capability and a range of connectivity features for today multi-media computing requirements, G31S-K/G31S enables you to unleash more power from your computer.

This chapter includes the following information:

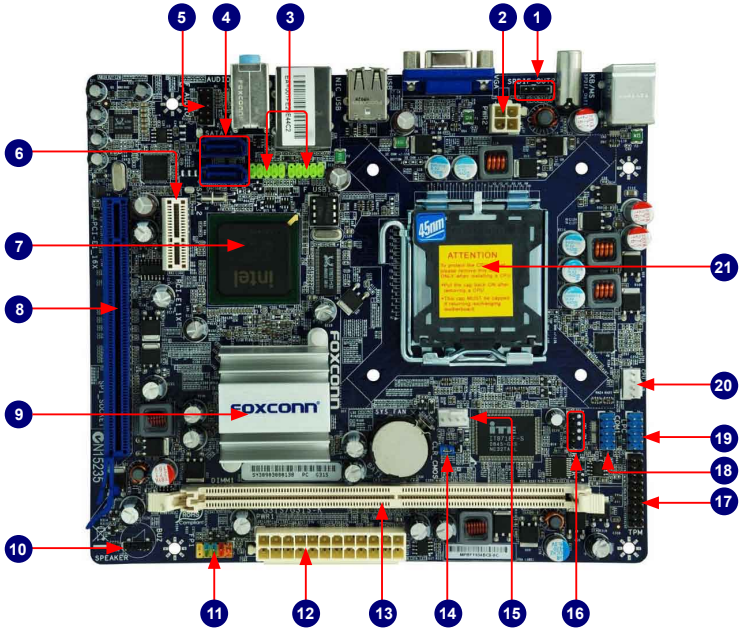
- Product Specifications
- Layout
- Back Panel Connectors

1-1 Product Specifications

CPU	Support LGA775 socket Intel® CPU: Core™ 2 Quard / Core™ 2 Duo / Pentium® Dual-Core / Celeron® Dual-Core /Conroe-L processors Supports 45nm processors
Front Side Bus	1333/1066/800MHz FSB
Chipset	North Bridge : Intel® G31 South Bridge : Intel® ICH7
Memory	1 x 240-pin DDR2 DIMM socket Support up to 2GB of system memory Single channel DDR2 800/667MHz architecture
Audio	Realtek 6-channel audio chip High Definition Audio 2/4/5.1-channel Support Jack-Sensing function
LAN	Realtek 10/100Mb/s LAN chip (G31S) Realtek Gigabit LAN chip(G31S-K)
Expansion Slots	1 x PCI Express x16 slot 1 x PCI Express x1 slot
Onboard Serial ATA	2 x SATA connectors 300MB/s data transfer rate Support hot plug and NCQ (Native Command Queuing)
USB	Support hot plug Support up to 8 x USB 2.0 ports (4 rear panel ports, 2 onboard USB headers supporting 4 extra ports) Support USB 2.0 protocol up to 480Mb/s
Internal Connectors	1 x 24-pin ATX main power connector 1 x 4-pin ATX 12V power connector 2 x SATA connectors 2 x USB 2.0 connectors (supporting 4 x USB devices) 1 x CPU fan header (4-pin) 1 x System fan connector (4-pin) 1 x Front Panel connector 1 x Speaker connector (4-pin) 1 x Front Audio connector 1 x TPM Connector 1 x COM Header 1 x S/PDIF_OUT Connector 1 x IR Connector 1 x LPC Connector

Back Panel Connectors	1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x VGA port 1 x Coaxial S/PDIF Out Connector 4 x USB 2.0 ports 1 x RJ-45 LAN port 6-channel Audio ports
Hardware Monitor	System voltage detection CPU/System temperature detection CPU/System fan speed detection CPU/System overheating shutdown CPU/System fan speed control
PCI Express x1	Support 250MB/s (500MB/s concurrent) bandwidth Low power consumption and power management features
PCI Express x16	Support 4GB/s (8GB/s concurrent) bandwidth Low power consumption and power management features
Green Function	Support ACPI (Advanced Configuration and Power Interface) Support S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (suspend to disk), and S5 (soft - off)
Bundled Software	FOX ONE FOX LiveUpdate FOX LOGO FOX DMI
Operating System	Support for Microsoft® Windows® Vista/XP
Form Factor	Mini ATX Form Factor, 7.6 inches x 6.7 inches (19.3cm x 17cm)

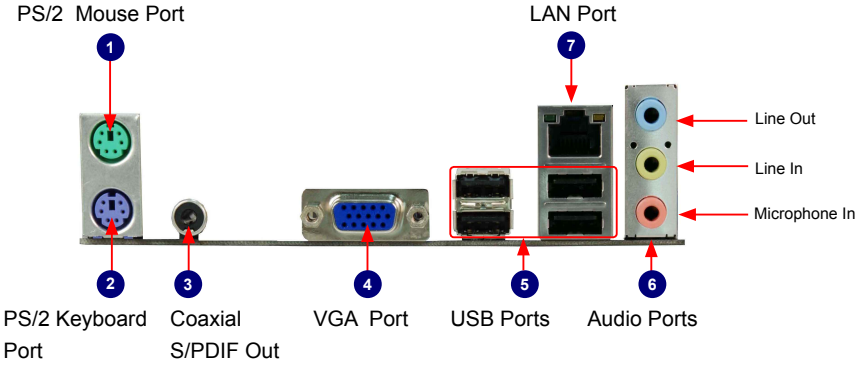
1-2 Layout



1. S/PDIF_OUT Connector
2. 4-pin ATX 12V Power Connector
3. Front USB Connectors
4. SATA Connectors
5. Front Audio Connector
6. PCI Express x1 Slot
7. South Bridge: Intel® ICH7
8. PCI Express x16 Slot
9. North Bridge: Intel® G31 Chipset
10. Speaker Connector
11. Front Panel Connector
12. 24-pin ATX Power Connector
13. DDR2 DIMM Slots
14. Clear CMOS Jumper
15. System Fan Header
16. IR/CIR Connector
17. TPM Connector
18. COM Connector
19. LPC Connector
20. CPU Fan Header
21. LGA 775 CPU Socket

Note : The above motherboard layout is for reference only, please refer to the physical motherboard for detail.

1-3 Back Panel Connectors



1. PS/2 Mouse Port

Use the upper port (green) to connect a PS/2 mouse.

2. PS/2 Keyboard Port

Use the lower port (purple) to connect a PS/2 keyboard.

3. Coaxial S/PDIF Out Port

This connector provides digital audio out to an external audio system that supports digital coaxial audio. Before using this feature, ensure that your audio system provides a coaxial digital audio in connector.

Note: Coaxial S/PDIF Out port in back panel and S/PDIF Out connector on motherboard can not exist in the same motherboard, please refer to the physcial motherboard for detail.

4. VGA Port

To connect with external display devices, such as monitor or LCD display.

5. USB Ports

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as an USB keyboard/mouse, USB printer, USB flash drive and etc.

6. Audio Ports

For the definition of each audio port, please refer to the table below :

Port	2-channel	4-channel	5.1-channel
Blue	Line In	Line In	Line In
Green	Line Out	Front Speaker Out	Front Speaker Out
Pink	Microphone In	Microphone In	Microphone In

* : Please refer to Chapter 4, and install the Realtek audio driver (in CD) to assign the audio output ports for different applications of 2/4/5.1 channels. The fundamental audio outputs are depicted in the table above

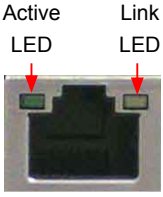
7. RJ-45 LAN Port

The Ethernet LAN port provides Internet connection at up to 10/100/1000Mb/s data rate.

LAN Type	Left: Active		Right: Link	
	Status	Description	Status	Description
100M	Off	No Link	Off	No Link
	Green Blinking	Data Activity	Orange	10/100Mb/s Connection
1000M	Off	No Link	Off	No Link
	Green Blinking	Data Activity	Off	10Mb/s Connection
			Green	100Mb/s Connection
			Orange	1000Mb/s Connection

CAUTION

G31S supports 10/100 Mb/s Ethernet.
G31S-K supports 1Gb/s Ethernet.



This chapter introduces the hardware installation process, including the installation of the CPU, memory, power supply, slots, pin headers and the mounting of jumpers. Caution should be exercised during the installation of these modules. Please refer to the motherboard layout prior to any installation and read the contents in this chapter carefully.

This chapter includes the following information :

- Install the CPU and CPU Cooler
- Install the Memory
- Install an Expansion Card
- Install other Internal Connectors
- Jumpers

This motherboard supports CPUs with a power rating no more than 65W, which include Intel® Core™ 2 Quad, Core™ 2 Duo, Pentium® Dual-Core, Celeron® Dual-Core, Conroe-L and 45nm CPUs. For further information, please refer to website **http://www.foxconnchannel.com** for CPU Support List. We cannot guarantee that your system can operate normally if you use a CPU not included in the CPU Support List.
Please visit this website for more supporting information about CPU, Memory and VGA for your motherboard :
http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

2-1 Install the CPU and CPU Cooler

CAUTION

Read the following guidelines before you begin to install the CPU :

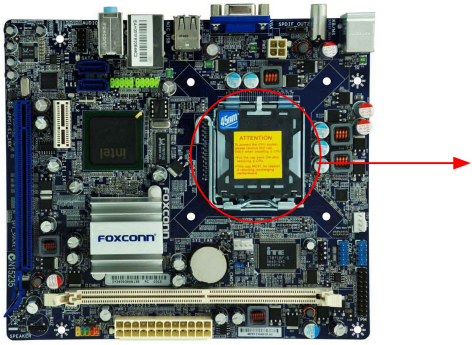
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power supply before installing the CPU to prevent hardware damage.
- Locate the Pin-1 of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

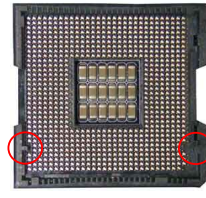
Hyper-Threading Technology System Requirements:
(Go to Intel's website for more information about the Hyper-Threading Technology)

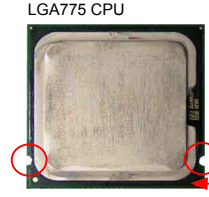
- An Intel® CPU that supports HT Technology
- A chipset that supports HT Technology
- An operating system that is optimized for HT Technology
- A BIOS that supports HT Technology and has it enabled

Install the CPU

Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.







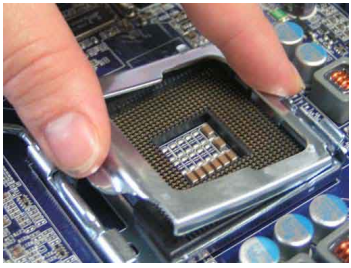
Follow the steps to install the CPU onto the CPU socket :

CAUTION

Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.

1. Remove protective socket cover.

2. Release the CPU socket lever.



3. Lift the metal cover on the CPU socket.

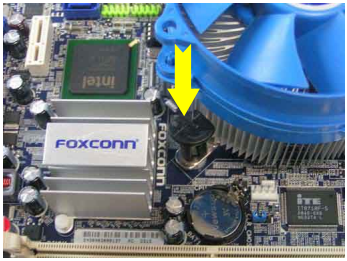
4. Check pin one marking (triangle) with the pin one corner of the CPU socket, align the CPU notches with the socket alignment keys and gently put the CPU onto the socket.

5. When CPU is properly seated, replace the metal cover and push the CPU socket lever back to its locked position.

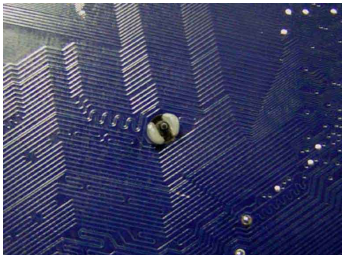
Install the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. (The following procedures use Foxconn cooler as the example.)

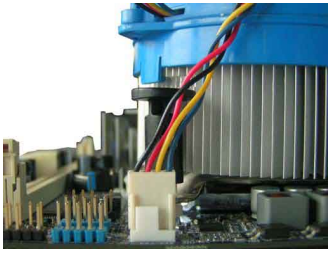
1. Apply and spread an even thermal grease on the surface of CPU.



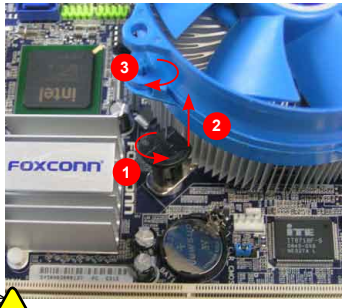
2. Place the four bolts of the CPU cooler to the holes of the motherboard, push them straight down from the top, and the bolts will be fastened on the motherboard. That's it.



3. Check the solder side of the motherboard, the push pin should be fixed as depicted in the picture.



4. Attach the 4-wire CPU cooler connector to the CPU FAN header on the motherboard .



Release bolts of CPU cooler from motherboard :

1. Turning the push pin (bolt) along with the direction of arrow (counterclockwise).
2. Pull the push pin straight up.
3. Turning push pin clockwise to its default position.

CAUTION

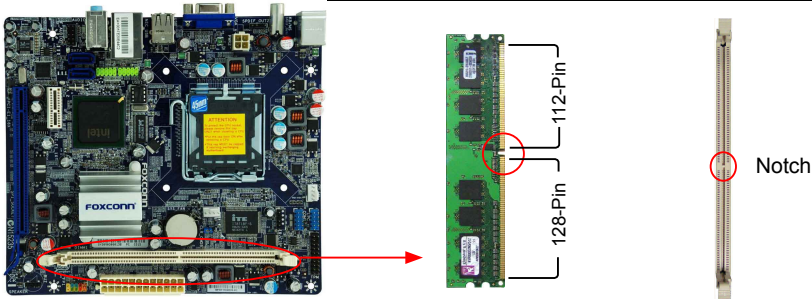
Use extreme care when removing the CPU cooler because the thermal grease may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

2-2 Install the Memory

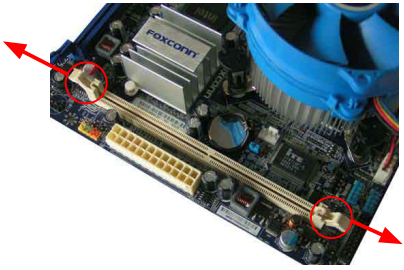
CAUTION

Read the following guidelines before you begin to install the memory :

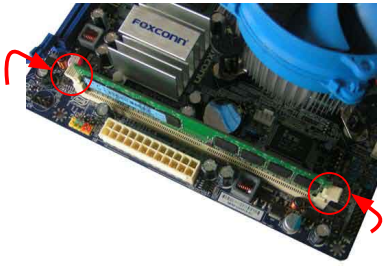
- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.



If you take a look at front side of memory module, it has asymmetric pin counts on both sides separated by a notch in the middle, so it can only fit in one direction. Follow the steps below to correctly install your memory modules into the sockets.



Step 1:
Spread the clips at both ends of the memory socket. Place the memory module onto the socket, then put your fingers on top edge of the module, and push it down firmly and seat it vertically into the memory socket.

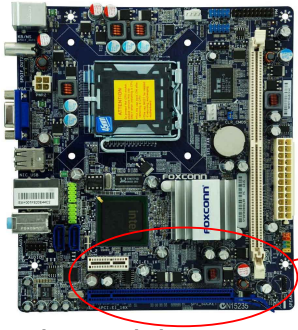


Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

2-3 Install an Expansion Card

CAUTION

- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.



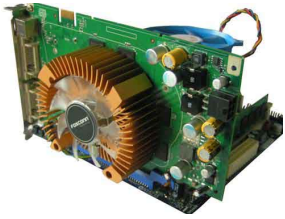
PCI Express x1

PCI Express x16

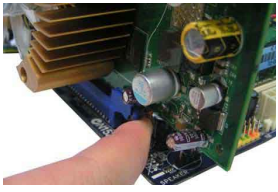
Follow the steps below to correctly install your expansion card in the expansion slot.

1. Locate an expansion slot that supports your card. Remove the metal slot cover from the chassis back panel.
2. Align the card with the slot, and press down on the card until it is fully seated in the slot.
3. Make sure the metal contacts on the card are completely inserted into the slot.
4. Secure the card's metal bracket to the chassis back panel with a screw.
5. After installing all expansion cards, replace the chassis cover.
6. Turn on your computer. If necessary, go to BIOS Setup to make any required BIOS changes for your expansion card(s).
7. Install the driver provided with the expansion card in your operating system.

Installing and Removing a PCI Express x16 Graphics Card :



• Installing a Graphics Card:
Gently insert the graphics card into the PCI Express x16 slot. Make sure the graphics card is locked by the latch at the end of the PCI Express x16 slot.



• Removing the Card:
Push the latch at the end of the PCI Express x16 slot to release the card and then pull the card straight up from the slot.

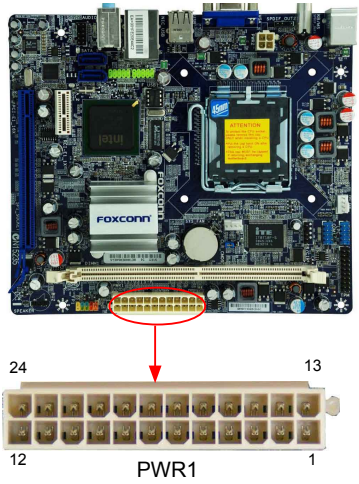
2-4 Install other Internal Connectors

Power Connectors

This motherboard uses an ATX power supply. In order not to damage any device, make sure all the devices have been installed properly before applying the power supply.

24-pin ATX power connector : PWR1

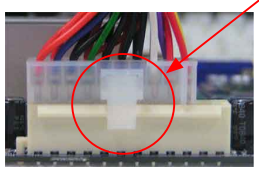
PWR1 is the ATX power supply connector. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



Pin #	Definition	Pin #	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(Soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	NC
9	+5V SB(Stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

CAUTION

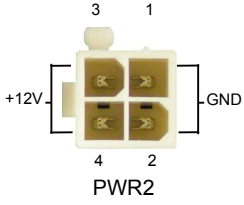
We recommend you using a 24-pin power supply. If you are using a 20-pin power supply, you need to align the ATX power connector according to the picture.



20-Pin Power

4-pin ATX 12 V Power Connector : PWR2

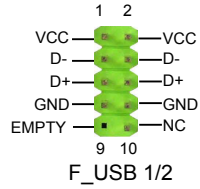
Connect the 4-pin ATX 12V power supply to PWR2 and provides power to the CPU.



Pin #	Definition
1	GND
2	GND
3	+12V
4	+12V

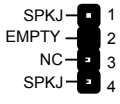
USB Connectors : F_USB1/2

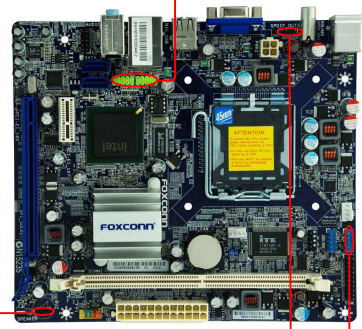
In addition to the four USB ports on the rear panel, this product also provides two 10-pin USB headers on its motherboard. By connecting through USB cables with them, user can quickly expand another four USB ports on the front panel.



Speaker Connector : SPEAKER

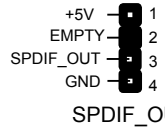
The speaker connector is used to connect speaker of the chassis.





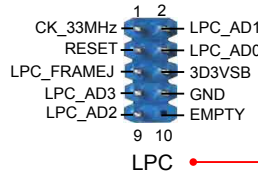
S/PDIF OUT Connector : SPDIF_OUT

The connector is used for S/PDIF output.



LPC Connector : LPC

This connector is a debug port. LPC stands for low-pin count, the low-pin count bus can provide a connection for a debugging dongle. The basic design encompasses using a Super I/O and UART on the dongle with a DB9 port out to provide similar debugging capabilities to the serial port.



Front Panel Connector : FP1

This motherboard includes one connector for connecting the front panel switch and LED Indicators.

Hard Disk LED Connector (HDD-LED)

Connect to the chassis front panel IDE indicator LED. It indicates the active status of the hard disks. This 2-pin connector is directional with +/- sign.

Reset Switch (RESET-SW)

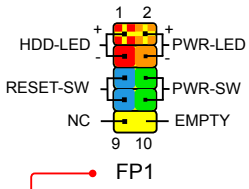
Attach the connector to the Reset switch on the front panel of the case; the system will restart when the switch is pressed.

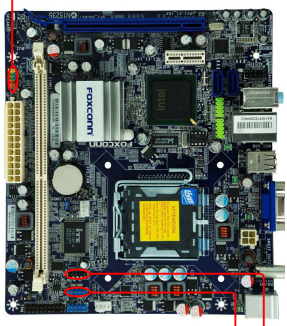
Power LED Connector (PWR-LED)

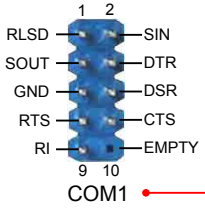
Connect to the power LED indicator on the front panel of the chassis. The Power LED indicates the system's status. When the system is in operation (S0 status), the LED is on. When the system gets into sleep mode (S1) , the LED is blinking; When the system is in S3/S4 sleep state or power off mode (S5), the LED is off. This 2-pin connector is directional with +/- sign.

Power Switch Connector (PWR-SW)

Connect to the power button on the front panel of the chassis. Push this switch allows the system to be turned on and off rather than using the power supply button.





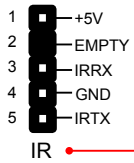


COM Connector : COM1

This motherboard supports one serial RS232 COM port for legacy compatibility. User must purchase another RS232 cable with a 9-pin D-sub connector at one end to connect with the external RS232 device and another end with 10-pin female connector to connect with COM2 connector in the motherboard.

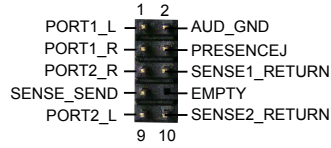
IrDA Connector : IR

This connector supports infrared wireless transmitting and receiving device.



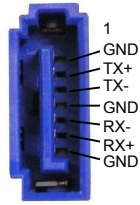
Audio Connector : F_AUDIO

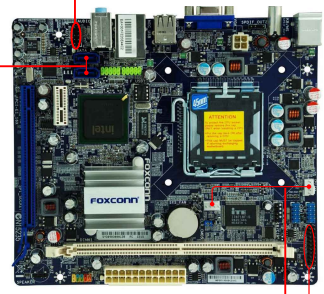
The audio connector supports HD Audio standard. It provides the Front Audio output choice.



Serial ATA Connectors : SATA_1/2

The Serial ATA connector is used to connect with SATA Hard Disk or CD devices which supporting this feature. The current Serial ATA II interface allows up to 300MB/s data transfer rate.



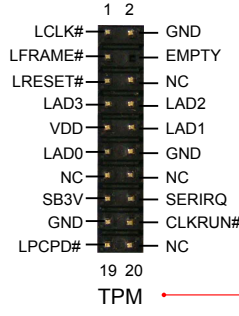


Fan Headers : CPU_FAN, SYS_FAN

There are two main fan headers on this motherboard. The fan speed can be controlled and monitored in “PC Health Status” section of the BIOS Setup. These fans can be automatically turned off after the system enters S3, S4 and S5 sleeping states.

TPM Connector : TPM

The TPM (Trusted Platform Module) provides the ability to the PC to run applications more secure and to make transactions and communication more trustworthy. To utilize this function, you should purchase additional device and install it.



2-5 Jumpers

For some features needed, users can change the jumper settings on this motherboard to modify them. This section explains how to use the various functions of this motherboard by changing the jumper settings. Users should read the following content carefully prior to modifying any jumper setting.

Description of Jumpers

1. For any jumper on this motherboard, Pin 1 can be identified by the bold silkscreen next to it. However, in this manual, Pin 1 is simply labeled as “1”.
2. The following table explains different types of the jumper settings. "Closed" means placing a jumper cap on the two pins to temporarily short them. The shorting can also be done by touching two pins by a screwdriver for a few seconds, but using jumper cap is recommended. It can prevent hazardous ESD (Electrical Static Discharge) problem.

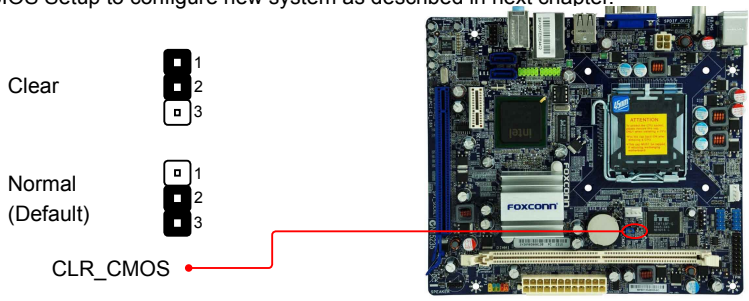
Jumper	Diagram	Definition	Description
1	1	1-2	Set Pin 1 and Pin 2 closed
	1	2-3	Set Pin 2 and Pin 3 closed

Clear CMOS Jumper: CLR_CMOS

The motherboard uses CMOS RAM to store the basic hardware information (such as BIOS data, date, time information, hardware password...etc.). Clear CMOS data is the fast way to go back to factory default when the BIOS settings were mistakenly modified.

The steps to clear CMOS data are :

1. Turn off the computer, unplug the power cord from the power outlet.
2. Remove jumper cap from pins 2-3, put it onto pins 1-2 to short them. This will clear CMOS data.
3. Return the setting to its original with pins 2-3 closed.
4. Plug in the power cord to your computer and turn it on.
5. Go to BIOS Setup to configure new system as described in next chapter.



- Disconnect the power cable before adjusting the jumper settings.
- Do not clear the CMOS while the system is turned on.

This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

You have to run the Setup Program when the following cases occur:

1. An error message appears on the screen during the system Power On Self Test (POST) process.
2. You want to change the default CMOS settings.

This chapter includes the following information :

- Enter BIOS Setup
- Main Menu
- System Information
- Fox Central Control Unit
- Advanced BIOS Features
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PC Health Status
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save & Exit Setup
- Exit Without Saving

Since BIOS could be updated some other times, the BIOS information described in this manual is for reference only. We do not guarantee the content of this manual will remain consistent with the newly released BIOS at any given time in the future. Please visit our website for updated manual if it is available.

Enter BIOS Setup

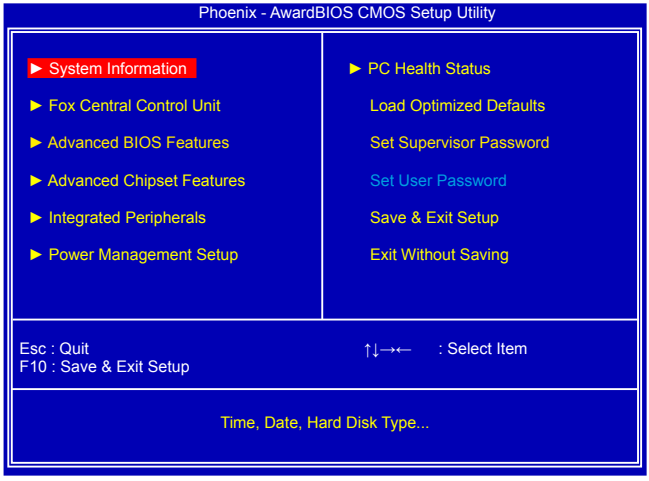
The BIOS is the communication bridge between hardware and software, correctly setting up the BIOS parameters is critical to maintain optimal system performance. Power on the computer, when the message "**Press <DEL> to enter Setup, <ESC> to boot menu**" appears at the bottom of the screen, you can press <Del> key to enter SETUP.

CAUTION

We do not suggest that you change the default values in the BIOS Setup, and we shall not be responsible for any damage which resulted from the change you made.

Main Menu

The main menu allows you to select from a list of setup functions together with two exit choices. Use the arrow keys to select a specific item and press <Enter> to go to the submenu.



Each item in the main menu is explained below:

► **System Information**

It displays the basic system configuration, such as BIOS ID, system date and time. They all can be seen or set up through this menu.

► **Fox Central Control Unit**

Some special proprietary features (such as overclocking) can be set up through this menu.

► **Advanced BIOS Features**

The advanced system features can be set up through this menu.

► **Advanced Chipset Features**

The values for the chipset can be changed through this menu, and the system performance can be optimized.

► **Integrated Peripherals**

All onboard peripherals can be set up through this menu. There are IDE devices, Super I/O devices such as Serial I/O and other USB devices... etc.

► **Power Management Setup**

All the items related with Green function features can be set up through this menu.

► **PC Health Status**

This setup enables you to read/change Fan speeds, and displays temperatures and voltages of your CPU/System.

► **Load Optimized Defaults**

The optimal performance settings can be loaded through this menu. However, it may offer better performance in some ways (such as less I/O cards, less memory ...etc.), still, it may cause problem if you have more memory or I/O cards installed. It means, if your system loading is heavy, set to optimal default may sometimes come out an unstable system. What you need now is to adjust BIOS setting one by one, trial and error, to find out the best setting for your current system.

► **Set Supervisor Password**

The supervisor password can be set up through this menu.

► **Set User Password**

The user password can be set up through this menu.

► **Save & Exit Setup**

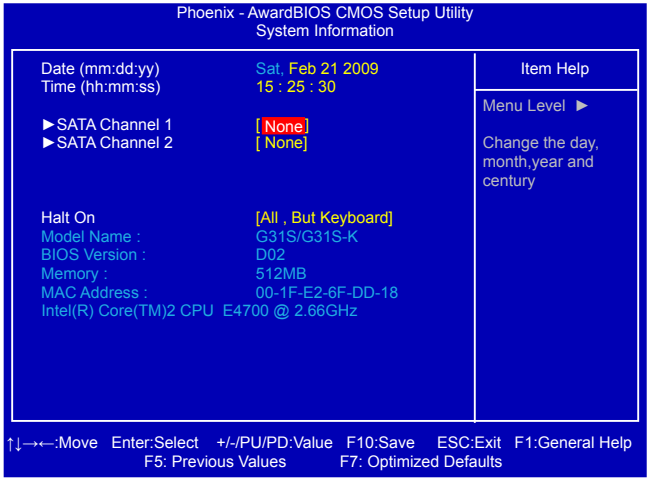
Save setting values to CMOS and exit.

► **Exit Without Saving**

Do not change anything and exit the setup.

When we talk about <+> and <-> keys in this manual, they are the single-keypad keys of the numeric keypad which is located at the right hand side of your desktop keyboard. They are not the combination keys made by pressing and holding down <Shift> key first, then press <+ => or <-_> key the next.

System Information


Phoenix - AwardBIOS CMOS Setup Utility
System Information
Date (mm:dd:yy) Sat, Feb 21 2009
Time (hh:mm:ss) 15 : 25 : 30
►SATA Channel 1 [None]
►SATA Channel 2 [None]
Halt On [All , But Keyboard]
Model Name : G31S/G31S-K
BIOS Version : D02
Memory : 512MB
MAC Address : 00-1F-E2-6F-DD-18
Intel(R) Core(TM)2 CPU E4700 @ 2.66GHz
Item Help
Menu Level ►
Change the day, month,year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

This submenu is used to set up the standard BIOS features, such as the date, time, IDE channel and so on. Use the arrow up/down keys to select an item, then use the <+> or <-> keys to change the setting.

► **Date -** <weekday><month><date> <year> format

Day—weekday from Sun. to Sat., automatically displayed by BIOS (Read Only).

Month—month from 1 to 12.

Date—date from 1st to 31st.

Year—year, set up by users.

Use <Enter>, <Tab> keys to select a field. Use <+>, <->, <PageUp> or <PageDown> to select a value.

► **Time -** <hour> : <minute> : <second> format

This item allows you to configure the desired time. Use <Enter>, <Tab> to move forward and select a field. Directly input a value or use <PageUp>, <PageDown>, <+> or <-> to select a value.

► **SATA Channel 1/2**

While entering setup, BOIS automatically detects the presence of SATA devise. This item displays the drive information of SATA devise.

►**Halt On**

This category determines whether or not the computer will stop if an error is detected during powering up.

All Errors	Whenever the BIOS detects a nonfatal error, the system will stop and you will be prompted.
No Errors	The system boot will not stop for any errors that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error; but it will stop for all other errors.

► **Model Name**

This item shows the model name.

► **BIOS Version**

This item shows the BIOS version.

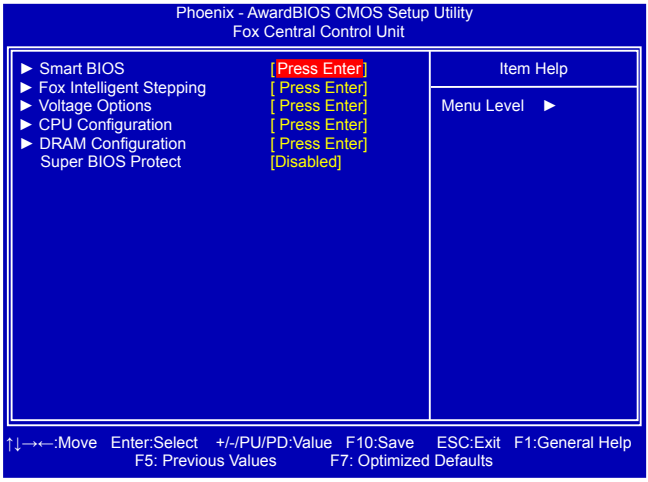
► **Memory**

This item shows the information of the system memory, determined by POST(Power On Self Test) of the BIOS.

► **MAC Address**

This item shows the onboard LAN MAC address.

Fox Central Control Unit


Phoenix - AwardBIOS CMOS Setup Utility
Fox Central Control Unit
► Smart BIOS [Press Enter]
► Fox Intelligent Stepping [Press Enter]
► Voltage Options [Press Enter]
► CPU Configuration [Press Enter]
► DRAM Configuration [Press Enter]
Super BIOS Protect [Disabled]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

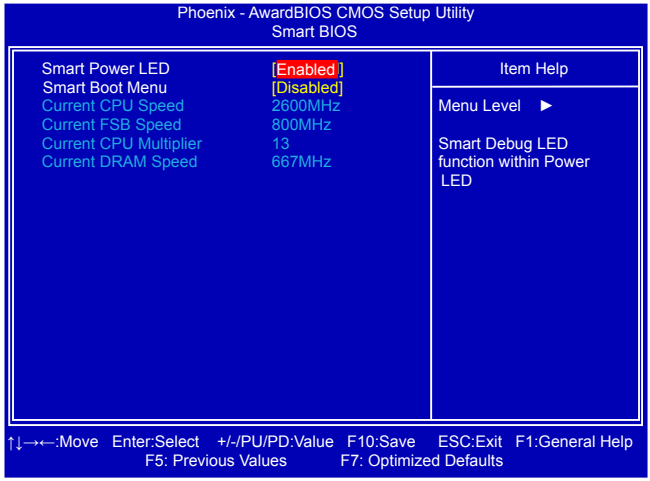
► Smart BIOS/ Fox Intelligent Stepping/ Voltage Options/ CPU Configuration/ DRAM Configuration

Press <Enter> to go to its submenu.

► Super BIOS Protect

To protect the system BIOS from virus attack, there is a BIOS write-protection mechanism provided. Super BIOS Protect function protects your BIOS from being affected by viruses, e.g. CIH.

Smart BIOS


Phoenix - AwardBIOS CMOS Setup Utility
Smart BIOS
Smart Power LED [Enabled]
Smart Boot Menu [Disabled]
Current CPU Speed 2600MHz
Current FSB Speed 800MHz
Current CPU Multiplier 13
Current DRAM Speed 667MHz
Item Help
Menu Level ►
Smart Debug LED function within Power LED
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **Smart Power LED**

Smart Power LED is a feature built on your motherboard to indicate different states during Power On System Test (POST). The LED is located at the front panel, and it displays POST state by different long-short blinking intervals. You can always leave this state enabled.

► **Smart Boot Menu**

When PC starts, it will ask you to press [Del] key to enter setup or press [Esc] key to enter smart boot menu. If [Disabled] is selected, then pressing [Esc] has no function. This also prevents user without password trying to get into your computer through smart boot menu.

System Status	Power LED Status	Stop Blinking Condition
Normal	Always On	Always On
No Memory	Continue blinking On (1sec.), Off (1sec.)	Reboot & Memory OK
No Display	Continue blinking On (2sec.), Off (2sec.)	Reboot & Display OK
Post Error Message	Quick blinking twice (1/3sec. On, 1/3sec. Off), one long On (1sec.), continuously.	Enter Setup or Skip
No CPU Fan	Continue blinking On (1/2sec.), Off (1/2sec.)	Reboot & Fan OK

► **Current CPU Speed**

This item displays the current CPU speed.

► **Current FSB Speed**

This item displays the current Front Side Bus speed.

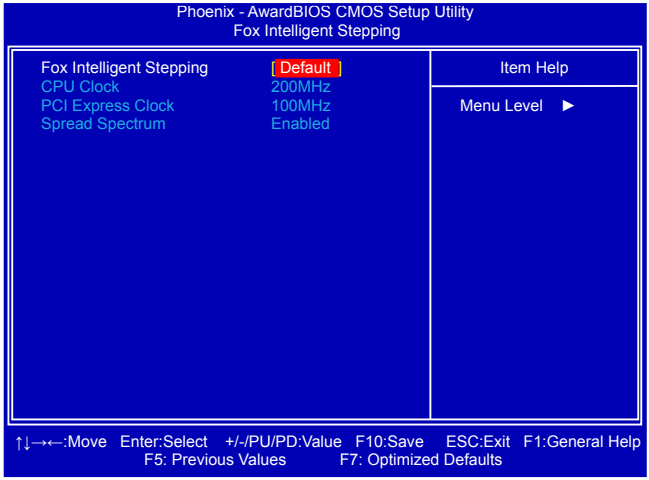
► **Current CPU Multiplier**

This item displays the current CPU Ratio.

► **Current DRAM Speed**

This item displays the current DRAM speed.

Fox Intelligent Stepping


Phoenix - AwardBIOS CMOS Setup Utility
Fox Intelligent Stepping
Fox Intelligent Stepping [Default]
CPU Clock 200MHz
PCI Express Clock 100MHz
Spread Spectrum Enabled
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **Fox Intelligent Stepping (FIS)**

You can select different overclock option by this item. The available setting values are : [Default], [Manual], [Step1], [Step2] and [Step 3].

[Default] - the system will automatically adjust its CPU clock based on the current loading in running O/S and application programs.

[Step 1] - CPU is overclocked by a BIOS preset value. Each CPU with different speed has its own set of preset value.

[Step 2] - Same definition as [Step 1].

[Step 3] - Same definition as [Step 1].

[Manual] - It means you can manually select a CPU clock to run your system. Any selected setting must be saved and exit BIOS to activate it. More detailed descriptions of FIS feature can be found in FOX ONE utility of Chapter 4.

The following 3 settings are valid only when the Fox Intelligent Stepping is set to [Manual].

► **CPU Clock**

This option is used to adjust the CPU clock.

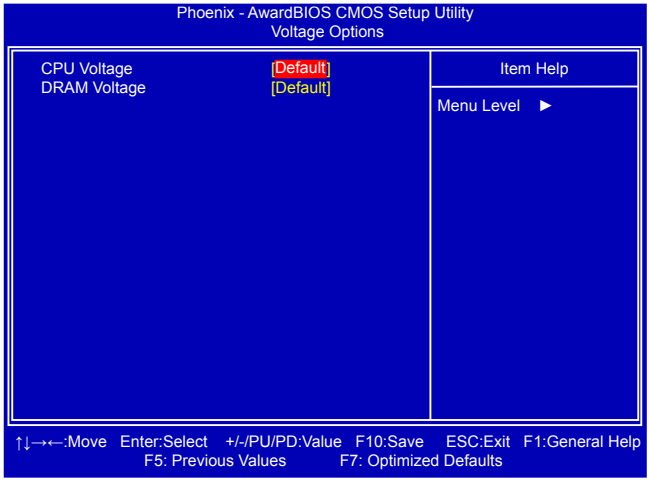
► **PCI Express Clock**

This option is used to adjust the speed of PCI Express slot. It may enhance the graphics card speed.

► **Spread Spectrum**

If you enabled this function, it can significantly reduce the EMI (Electromagnetic Interference) generated by the system, so to comply with FCC regulation. But if overclocking is activated, you had better disable it.

Voltage Options


Phoenix - AwardBIOS CMOS Setup Utility
Voltage Options
CPU Voltage [Default]
DRAM Voltage [Default]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

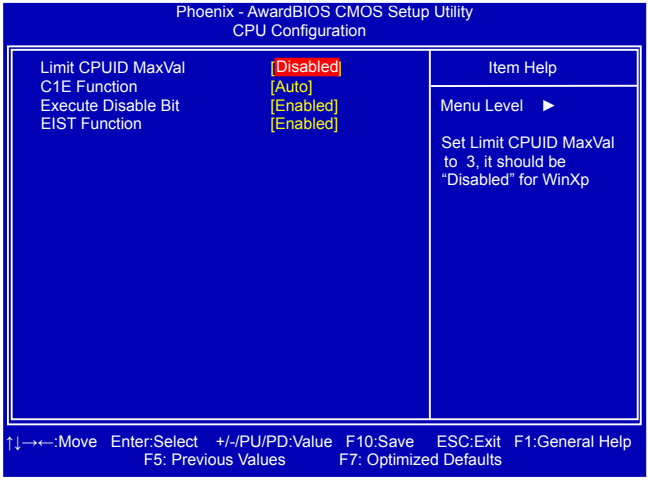
► **CPU Voltage**

This option is used to change the CPU voltage.

► **DRAM Voltage**

This option is used to change the DRAM voltage.

CPU Configuration


Phoenix - AwardBIOS CMOS Setup Utility
CPU Configuration
Limit CPUID MaxVal [Disabled]
C1E Function [Auto]
Execute Disable Bit [Enabled]
EIST Function [Enabled]
Item Help
Menu Level ►
Set Limit CPUID MaxVal to 3, it should be "Disabled" for WinXp
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **Limit CPUID MaxVal**

This item is used to enable or disable CPUID maximum value limit configuration. Set Limit CPUID MaxVal to 3, it should be [Disabled] for WinXP.

► **C1E Function**

C1E represents Enhanced HALT State. It is a feature which Intel CPU uses to reduce power consumption when in halt state. C1E drops the CPU's multiplier and voltage to lower levels when a HLT (halt) command is issued. This item is used to enable/disable the C1E support.

► **Execute Disable Bit**

This item is used to enable/disable the Execute Disable Bit feature.

Intel's Execute Disable Bit functionality can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.

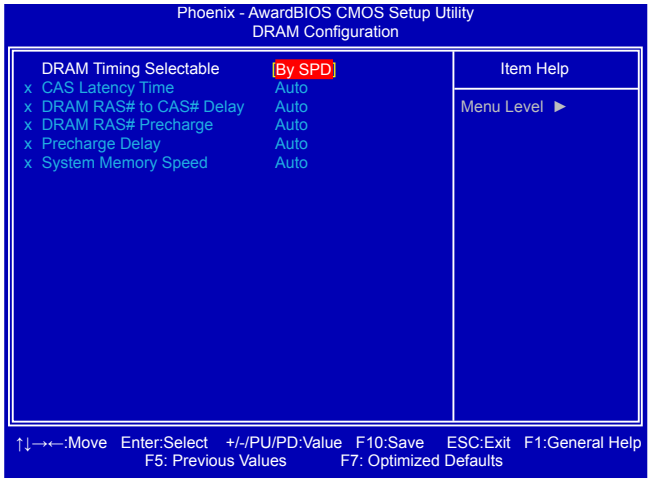
Execute Disable Bit allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage and worm propagation. Replacing older computers with Execute Disable Bit-enabled systems can halt worm attacks, reducing the need for virus-related repairs. By combining Execute Disable Bit with anti-virus, firewall, spyware removal, e-mail filtering software, and other network security measures, IT managers can free IT resources for other initiatives.

► **EIST Function**

You can select the EIST (Processor Power Management, PPM) through this item.

Enhanced Intel SpeedStep® technology (EIST) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production. There are some system requirements must be met, including CPU, chipset, motherboard, BIOS and operation system. Please refer to Intel Website for more information.

DRAM Configuration


Phoenix - AwardBIOS CMOS Setup Utility
DRAM Configuration
DRAM Timing Selectable [By SPD]
x CAS Latency Time Auto
x DRAM RAS# to CAS# Delay Auto
x DRAM RAS# Precharge Auto
x Precharge Delay Auto
x System Memory Speed Auto
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **DRAM Timing Selectable**

This item is used to enable/disable provision of DRAM timing by SPD device. The Serial Presence Detect (SPD) device is a small EEPROM chip, mounted on a DDR2 memory module. It contains important information about the module's speed, size, addressing mode and various other parameters, so that the motherboard memory controller (chipset) can better access the memory device. Select [Manual], then you can configure the DRAM timing manually.

The following 5 settings are valid only when the DRAM Timing Selectable is set to [Manual].

► **CAS Latency Time**

This item controls the CAS latency. The CAS Latency is the number of clock cycles that elapse from the time the request for data is sent to the actual memory location until the data is transmitted from the module.

► **DRAM RAS# to CAS# Delay**

This item allows you to select a delay time (in clock cycles) between the CAS and RAS strobe signals.

► **DRAM RAS# Precharge**

This item allows you to select the DRAM RAS precharge time (in clock cycles).

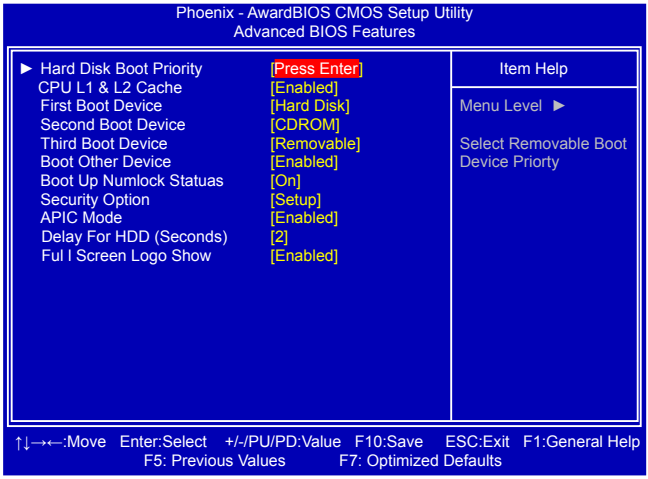
► **Precharge Delay**

This item allows you to set the precharge delay time (in clock cycles).

► **System Memory Speed**

This item is used to manually select a DRAM speed. The options are [Auto], [533MHz], [667MHz] and [800MHz].

Advanced BIOS Features


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
► Hard Disk Boot Priority [Press Enter]
CPU L1 & L2 Cache [Enabled]
First Boot Device [Hard Disk]
Second Boot Device [CDROM]
Third Boot Device [Removable]
Boot Other Device [Enabled]
Boot Up Numlock Statuas [On]
Security Option [Setup]
APIC Mode [Enabled]
Delay For HDD (Seconds) [2]
Ful l Screen Logo Show [Enabled]
Item Help
Menu Level ►
Select Removable Boot Device Priorty
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **Hard Disk Boot Priority**

This option is used to select the priority for HDD startup. After pressing <Enter>, you can select the HDD using the Up/Down arrow keys, and change the HDD priority using <PageUp>/<PageDown>; you can exit this menu by pressing <Esc>.

► **CPU L1 & L2 Cache**

Enable/Disable CPU cache setting. L1, L2 cache are small, fast memory caches that are built into a CPU and help speed access to important and frequently-used data. L1 cache is typically smaller and faster than L2 cache. L1 cache is an abbreviation of Level 1 cache.

► **First/Second/Third Boot Device**

These three options allow you to select the priority of boot sequence from different devices.

► **Boot Other Device**

With this function set to enable, the system will boot from some other devices provided that the first/second/third boot devices failed. The options are: Disabled and Enabled.

► **Boot Up NumLock Status**

This item defines if the keyboard Num Lock key is active when your system is started. The available settings are: On (default) and Off.

► **Security Option**

When it is set to “Setup”, a password is required to enter the CMOS Setup screen; When it is set to “System”, a password is required not only to enter CMOS Setup, but also to start up your PC.

► **APIC Mode (**Advanced Programmable Interrupt Controller)

This item is used to enable or disable APIC function.

APIC interrupt subsystems can have as many IRQs as are required in a specific machine. APICs are beneficial for the following reasons :

• APICs can contribute to resolving resource conflicts in the PC platform.

• Windows operating systems have been designed with APICs in mind.

• APICs are necessary for enabling new features in the PCI specification.

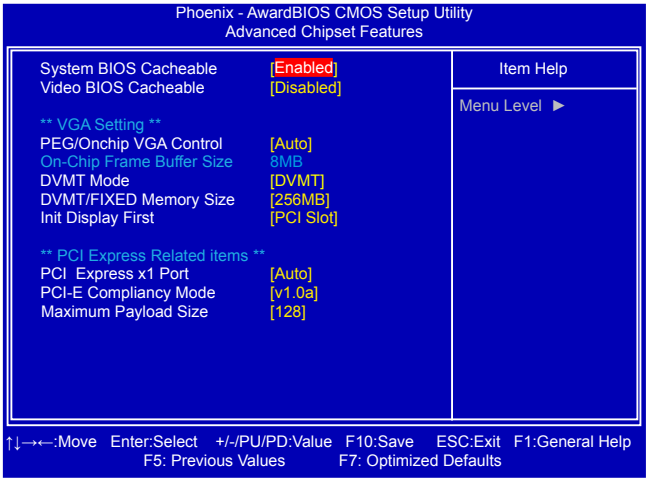
►Delay For HDD (Seconds)

This item allows you to select the delay for detecting ATA/ATAPI devices while booting. Time out value: 0~15s.

► Full Screen Logo Show

This item allows you to enable or disable full screen logo show.

Advanced Chipset Features


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Disabled]
** VGA Setting **
PEG/Onchip VGA Control [Auto]
On-Chip Frame Buffer Size 8MB
DVMT Mode [DVMT]
DVMT/FIXED Memory Size [256MB]
Init Display First [PCI Slot]
** PCI Express Related items **
PCI Express x1 Port [Auto]
PCI-E Compliancy Mode [v1.0a]
Maximum Payload Size [128]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **System BIOS Cacheable**

Select “Enabled” to allow caching of the system BIOS which may improve performance. If any other program writes to this memory area, a system error may result.

► **Video BIOS Cacheable**

Select “Enabled” to allow caching of the on board video BIOS which may improve performance. If any other program writes to this memory area, a system error may result.

** VGA Setting **

► **PEG/Onchip VGA Control**

This option is used to enable or disable PCI Express graphics card or onboard VGA.

► **On-Chip Frame Buffer Size**

Intel 945GC chipset supports the selection of two different sizes of pre-allocated memory : 1MB and 8MB. This pre-allocated memory selection is supplied for legacy VGA and SVGA graphics support and compatibility. Upon boot, the system BIOS will pre-allocate the amount selected (1MB or 8MB) from the top of the main system memory, which will be dedicated for VGA/SVGA graphics. The VGA graphics memory is needed for applications run from a Microsoft MS-DOS or legacy operating system, where there is no Intel Graphics Driver loaded.

► **DVMT Mode**

Dynamic Video Memory Technology (DVMT) dynamically allocates system memory for use as video memory to ensure the most efficient use of available resources for maximum 2D/3D graphics performance.

The amount of video memory allocated depends upon the amount requested by the operating system. When the memory is no longer required, it is returned to the operating system for use by other applications or system functions. DVMT allocates memory based on system needs. This BIOS option allows you to adjust the amount of memory available for DVMT.

Fixed is a memory allocation method addition to the Unified Memory Architecture (UMA) concept, wherein a static amount of page-locked graphics memory is allocated during driver initialization. This fixed amount of memory will provide the user with a guaranteed graphics memory at all times, and will no longer be available to the OS.

DVMT is an enhancement of the UMA concept, where in the graphics driver allocates memory as needed for running graphics applications. If a user is not performing any graphics-intensive operations, most of the DVMT memory can be utilized by the OS for other uses. We recommend using DVMT setting for better overall system performance.

► **DVMT/FIXED Memory Size**

Select graphics memory size for Fixed or DVMT usage.

► **Init Display First**

Select PCI-Express graphics card as the default first display device.

This option is used to select the source of primary display device. It can be onboard display or PCI-Express graphics card. Select Auto then if no PCI-E graphics card is installed, onboard VGA will be used.

PCI Express Related items

► **PCI Express x1 port**

This item is used to enable/disable PCI Express x1 port, or let it be auto-dectected.

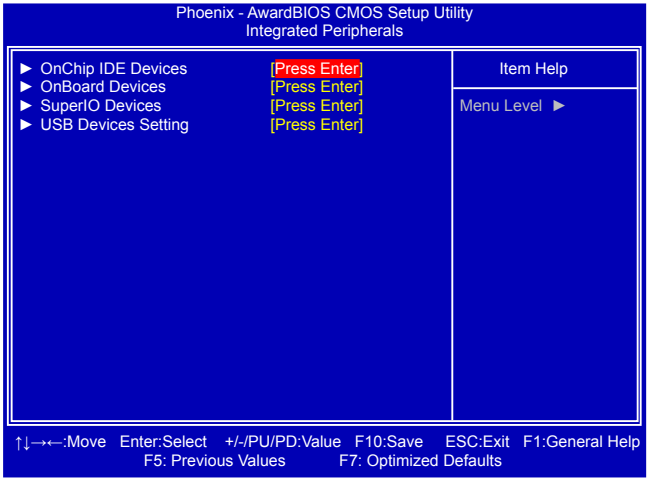
► **PCI-E Compliancy Mode**

This item is used to set the PCI-E compliancy mode. Setting options: [v1.0a]; [v1.0].

► **Maximum Payload Size**

This item is used to set maximum Transaction Layer Packets (TLP) payload size for PCI Express devices. The unit is byte.

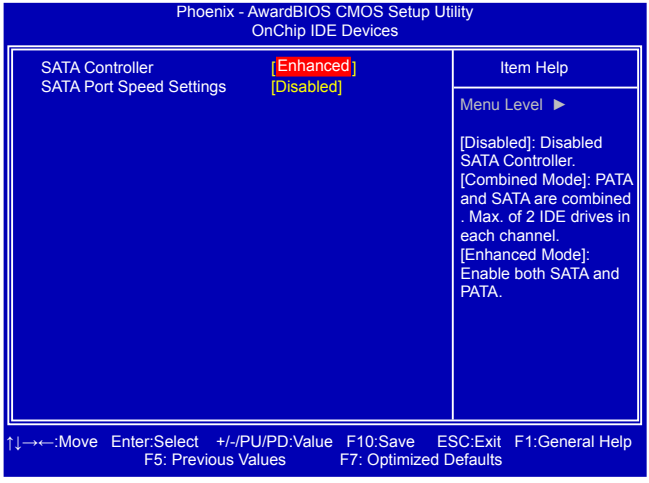
Integrated Peripherals


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
► OnChip IDE Devices [Press Enter]
► OnBoard Devices [Press Enter]
► SuperIO Devices [Press Enter]
► USB Devices Setting [Press Enter]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► OnChip IDE Devices / OnBoard Devices / SuperIO Devices / USB Devices Setting

Press <Enter> to go to relative submenu.

OnChip IDE Devices


Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Devices
SATA Controller [Enhanced]
SATA Port Speed Settings [Disabled]
Item Help
Menu Level ►
[Disabled]: Disabled SATA Controller.
[Combined Mode]: PATA and SATA are combined . Max. of 2 IDE drives in each channel.
[Enhanced Mode]: Enable both SATA and PATA.
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► SATA Controller

[Disabled]:Disabled SATA Controller.

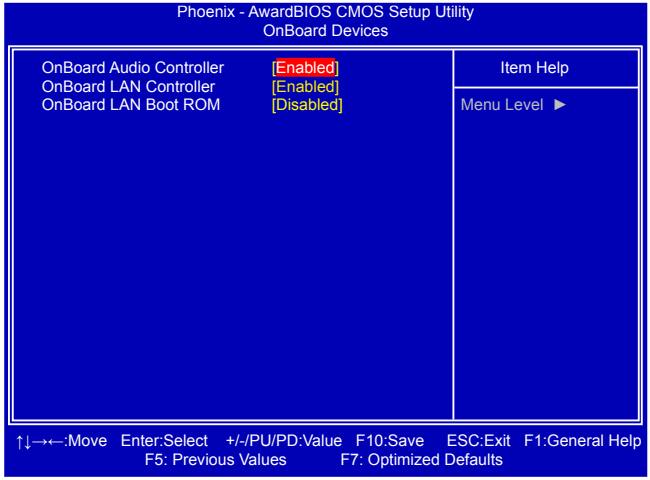
[Combined Mode]: PATA and SATA are combined. Max. of 2 IDE drives in each channel.

[Enhanced Mode]: Enable both SATA and PATA.

► SATA Port Speed Settings

When SATA is operating in [Enhanced Mode], you can select its speed to [Disabled], [Force GEN I] or [Force GEN II]. [Force GEN II] can get the best performance.

OnBoard Devices


Phoenix - AwardBIOS CMOS Setup Utility
OnBoard Devices
OnBoard Audio Controller [Enabled]
OnBoard LAN Controller [Enabled]
OnBoard LAN Boot ROM [Disabled]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **OnBoard Audio Controller**

This item is used to enable or disable the onboard audio controller.

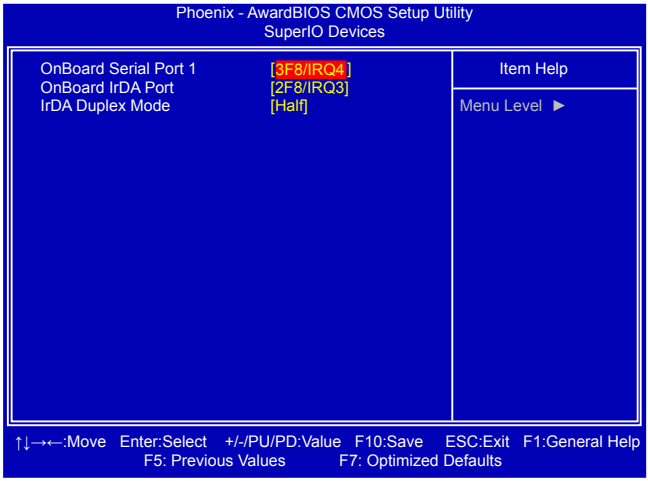
► **OnBoard LAN Controller**

This item is used to enable or disable the onboard LAN controller.

► **OnBoard LAN Boot ROM**

This item is used to enable or disable the onboard LAN boot optional ROM. A LAN boot ROM lets you set up a diskless workstation on the network. By installing a boot ROM in the network board, you can enable a client PC system on the network to be booted remotely.

SuperIO Devices


Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Devices
OnBoard Serial Port 1 [3F8/IRQ4]
OnBoard IrDA Port [2F8/IRQ3]
IrDA Duplex Mode [Half]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **OnBoard Serial Port 1**

This item is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 1.

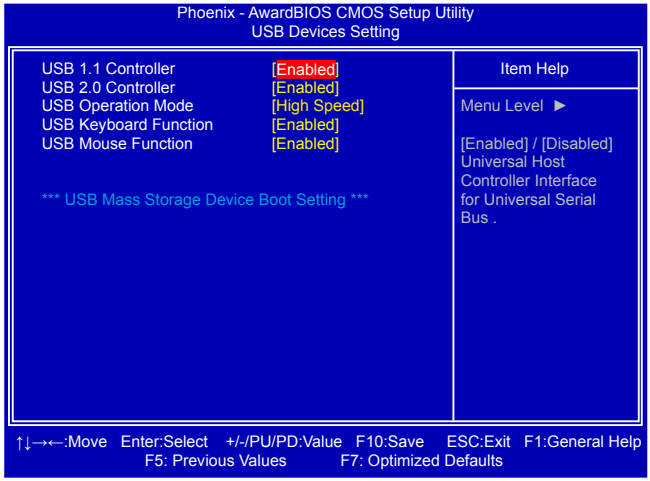
► **OnBoard IrDA Port**

This item is used to assign the I/O address and interrupt requst (IRQ) for the onboard IrDA port.

► **IrDA Duplex Mode**

This item enables you to determine the infrared function of the onboard infrared chip.

USB Devices Setting


Phoenix - AwardBIOS CMOS Setup Utility
USB Devices Setting
USB 1.1 Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Operation Mode [High Speed]
USB Keyboard Function [Enabled]
USB Mouse Function [Enabled]
*** USB Mass Storage Device Boot Setting ***
Item Help
Menu Level ►
[Enabled] / [Disabled] Universal Host Controller Interface for Universal Serial Bus .
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **USB 1.1 Controller**

This item is used to enable or disable the Universal Host Controller Interface for USB.

► **USB 2.0 Controller**

This item is used to enable or disable the Enhanced Host Controller Interface for USB.

► **USB Operation Mode**

This item is used to set the USB operation mode. If you select the [High Speed], then the USB operation mode is determined by the USB device; select [Full/Low Speed], the USB device operates on full/low speed.

► **USB Keyboard Function**

This item is used to enable the support for USB keyboard on legacy OS. If you have a USB keyboard, set to auto or enabled.

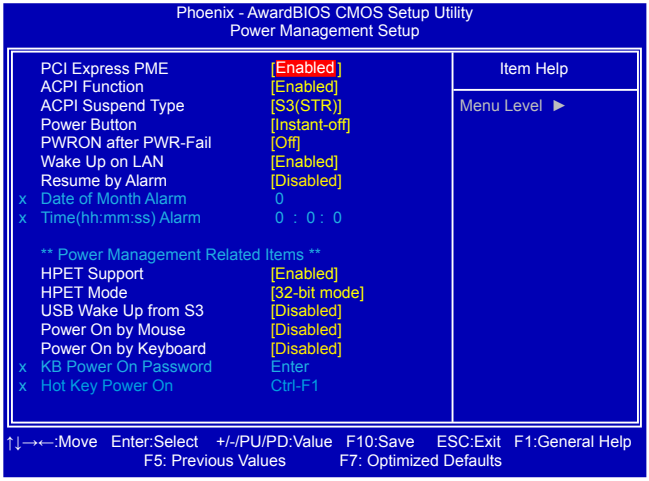
► **USB Mouse Function**

This item is used to enable the support for USB mouse on legacy OS. If you have a USB mouse, set to auto or enabled.

► *****USB Mass Storage Device Boot Setting*****

BIOS auto detects the presence of USB Mass Storage Devices, you can configure the Boot setting mode for the detected USB MSD. Setting Options: [Auto]; [FDD Mode]; [HDD Mode]

Power Management Setup


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
PCI Express PME [Enabled]
ACPI Function [Enabled]
ACPI Suspend Type [S3(STR)]
Power Button [Instant-off]
PWRON after PWR-Fail [Off]
Wake Up on LAN [Enabled]
Resume by Alarm [Disabled]
x Date of Month Alarm 0
x Time(hh:mm:ss) Alarm 0 : 0 : 0
** Power Management Related Items **
HPET Support [Enabled]
HPET Mode [32-bit mode]
USB Wake Up from S3 [Disabled]
Power On by Mouse [Disabled]
Power On by Keyboard [Disabled]
x KB Power On Password Enter
x Hot Key Power On Ctrl-F1
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

ACPI (Advanced Configuration and Power Interface) is an open industry standard that defines power and configuration management interfaces between an operating system and the BIOS. In other words, it is a standard that describes how computer components work together to manage system hardware. In order to use this function the ACPI specification must be supported by the OS (for example, Windows2000 or WindowsXP).

ACPI defines five sleeping states, they are :

S1 - The S1 sleeping state is a low wake latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system context. (also called **Power On Suspend**)

S2 - The S2 sleeping state is a low wake latency sleeping state. This state is similar to the S1 sleeping state except that the CPU and system cache context is lost (the OS is responsible for maintaining the caches and CPU context). Control starts from the processor's reset vector after the wake event.

S3 - The S3 sleeping state is a low wake latency sleeping state where all system context is lost except system memory. CPU, cache, and chip set context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context. Control starts from the processor's reset vector after the wake event. (also called **Suspend to RAM**)

S4 - The S4 sleeping state is the lowest power, longest wake latency sleeping state supported by ACPI. In order to reduce power to a minimum, it is assumed that the hardware platform has powered off all devices. Platform context is maintained. (also called **Suspend to Disk**)

S5 - The S5 state is similar to the S4 state except that the OS does not save any context. The system is in the "soft" off state and requires a complete boot when it wakes. Software

uses a different state value to distinguish between the S5 state and the S4 state to allow for initial boot operations within the BIOS to distinguish whether or not the boot is going to wake from a saved memory image.

► **PCI Express PME**

This item is used to enable/disable PCI PME# event to generate a wake up. PME# is a signal which can be triggered from a PCI card. It represents Power Management Event.

► **ACPI Function**

This item is used to enable or disable the ACPI function.

► **ACPI Suspend Type**

This item is used to set the energy saving mode of the ACPI function. When you select “S1 (POS)” mode, the power is always on and computer can be resumed at any time. When you select “S3 (STR)” mode, the power will be down after a period of time. The status of the computer before it entering STR will be saved in memory, and the computer can quickly return to previous state when the STR function wakes.

► **Power Button**

This item is used to set the power down method. This function is only valid for systems using an ATX power supply. When set to [Delay 4 Sec.], the power button will put the system in Suspend mode if you push the power button in less than 4 Second then release. If set to [Instant-Off], the PC powers off immediately when the power button is pressed.

► **PWRON after PWR-Fail**

This item is used to set which state the PC will take with when it resumes after an AC power loss.

► **Wake Up on LAN**

This item is used to set the system to wake up by LAN.

► **Resume by Alarm**

This item is used to set the timing of the start-up function. In order to use this function, the start-up password function must be disabled. Also, the PC power source must not be turned off.

► **Date of Month Alarm**

When Resume by Alarm is set to “Enabled”, this item can be modified. It is used to set the timing for the start-up date.

► **Time (hh:mm:ss) Alarm**

When Resume by Alarm is set to “Enabled”, this item can be modified. It is used to set the timing for the start-up time.

****Power Management Related Items****

► **HPET Support**

HPET stands for High Precision Even Timer. If you have the HPET disabled, then windows does not have access to it and therefore falls back to less accurate timing methods. This item is used to enable or disable the HPET Support.

► **HPET Mode**

This item is used to set the HPET Mode. Configuration options: [32-bit mode]; [64-bit mode]. It can be available only when the HPET Support is enabled.

► **USB Wake Up from S3**

This item is used to set the system to wake up by USB devices when it is staying at S3 (Suspend to RAM) state.

► **Power On by Mouse**

When enabled, it allows you to use the mouse to wake up the system from soft off and green mode. This feature requires an ATX power supply.

► **Power On by Keyboard**

This item allows you to use the keyboard to wake up the system from soft off and green mode. This feature requires an ATX power supply. The options are: [Disabled]; [Password]; [Hot KEY]; [Any KEY], and [Keyboard 98].

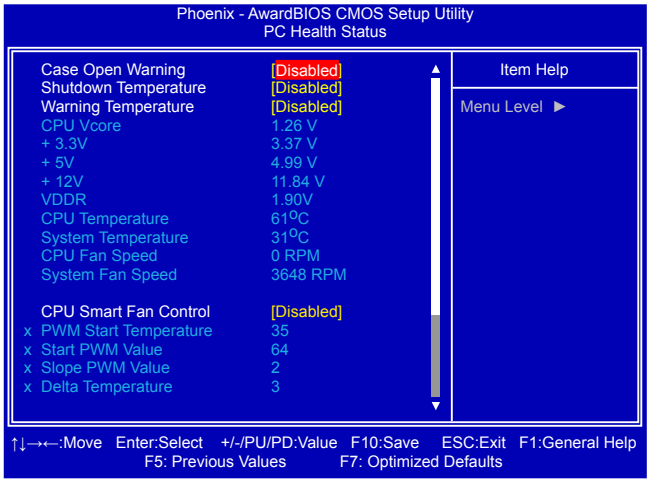
► **KB Power On Password**

When Power On by Keyboard is set to [Password], this item allows you to input a password to wake up the system from soft off and green mode.

► **Hot Key Power On**

When Power On by Keyboard is set to [Hot KEY], this item allows you to press a [Ctrl] + [Function] key to wake up the system from soft off and green mode.

PC Health Status


Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status
Case Open Warning [Disabled]
Shutdown Temperature [Disabled]
Warning Temperature [Disabled]
CPU Vcore 1.26 V
+ 3.3V 3.37 V
+ 5V 4.99 V
+ 12V 11.84 V
VDDR 1.90V
CPU Temperature 61°C
System Temperature 31°C
CPU Fan Speed 0 RPM
System Fan Speed 3648 RPM
CPU Smart Fan Control [Disabled]
x PWM Start Temperature 35
x Start PWM Value 64
x Slope PWM Value 2
x Delta Temperature 3
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F7: Optimized Defaults

► **Case Open Warning**

This item is used to enable or disable case open warning function.

► **Shutdown Temperature**

This item is used to set the system temperature upper limit. When the temperature exceeds the set value, the system will shut down automatically.

► **Warning Temperature**

This option is used to set the warning temperature for the system. When the temperature of CPU is higher than the set value, the motherboard will send out warning information.

► **CPU Vcore/+ 3.3V/+5V/+12V/VDDR**

The current voltages are automatically detected and displayed by the system.

► **CPU/System Temperature**

The CPU/System temperature are automatically detected and displayed by the system.

► **CPU Fan/System Fan Speed**

The CPU fan/System fan speed are automatically detected and displayed by the system.

► **CPU Smart Fan Control**

This option is used to enable or disable CPU smart fan function. Only when this option is enabled, you can set some correlative parameters.

► **PWM Start Temperature**

It allows you set a temperature value from which smart fan starts its operation.

► **Start PWM Value**

It allows you to set an initial PWM value to drive the fan when the temperature reaches Start value and smart fan begins its operation. The higher PWM value can achieve the faster fan speed.

► **Slope PWM Value**

It controls the PWM value being stepped up or down versus temperature changes.

► **Delta Temperture**

It is used to set the delta value for temperature. When change of the temperature reaches plus/minus delta value, then the PWM will be increased or decreased by a step value based on the slope formula.

► **System Smart Fan Control**

This option is used to enable or disable system smart fan function. Only when this option is enabled, you can set some correlative parameters.

► **PWM Start Temperature**

It allows you set a temperature value from which smart fan starts its operation.

► **Start PWM Value**

It allows you to set an initial PWM value to drive the fan when the temperature reaches Start value and smart fan begins its operation. The higher PWM value can achieve the faster fan speed.

► **Slope PWM Value**

It controls the PWM value being stepped up or down versus temperature changes.

► **Delta Temperture**

It is used to set the delta value for temperature. When change of the temperature reaches plus/minus delta value, then the PWM will be increased or decreased by a step value based on the slope formula.

Load Optimized Defaults

Select this option and press <Enter>. A dialogue pops out, select <Y> then press <Enter> to load the defaults; press <N> to skip. By this default, BIOS have set the optimized performance parameters of system to improve the performances of system components. But if the optimized performance parameters to be set cannot be supported by your hardware devices, the system may fail to work. It may happen on when you installed too many add-on cards on your system, or overloaded the hardware until it can not afford.

Set Supervisor Password

The access rights and permissions associated with the Supervisor password are higher than those of a regular User password. The Supervisor password can be used to start the system or modify the CMOS settings, while User password can only be used to start the system, view the CMOS settings, but modify CMOS settings is not allowable.

When you select the Set Supervisor/User Password option, the Enter Password message will appear :

The supervisor password can be set up through this menu. Key in a password, not exceeding 8 characters, save the change and exit. The next time, when you enter the BIOS, it will ask you to input this password to confirm your access right. After you get the right to access the BIOS, you then can select this setting again, and press <Enter> to disable this function or input a new password to replace the original one.

If you select “System” for the Security Option in “Advanced BIOS Features” menu, then you will be asked to enter a password when the system is started or when you try to enter the CMOS setting program. If an incorrect password is entered, you will be hold there.
If you select “Setup” for the Security Option in “Advanced BIOS Features” menu, you will be asked to enter a password only when you enter the CMOS setting program.

Set User Password

The user password can be set up through this menu. Only when there exists a Supervisor password, then this setting can be activated.

Save & Exit Setup

When you select this option and press <Enter>,
Select <Y> to save your changes to CMOS and exit the program;
Select <N> or <ESC> to return to the main menu.

Exit Without Saving

If you select this option and press <Enter>,
Select <Y> to exit CMOS without saving your modifications;
Select <N> or <ESC> to return to the main menu.

The utility CD that came with the motherboard contains useful software and several utility drivers that enhance the motherboard features.

This chapter includes the following information:

- Utility CD content
- Install driver and utility
- FOX ONE
- FOX LiveUpdate
- FOX LOGO
- FOX DMI

Note : Because each module is independent, so the section number will be reorganized and unique to each module, please understand.

Utility CD content

This motherboard comes with one Utility CD. You can simply put it into your CD/DVD-ROM drive, and the main menu will be displayed on your PC screen to guide you how to install.

1. Install Driver

Use these options to install all the drivers for your system. You should install the drivers in order, and you need to restart your computer after all the drivers have been installed.

A. Intel Chipset Driver
B. Realtek HDA Audio Driver
C. Realtek 811X LAN Driver
D. Intel VGA Driver

2. Software Utilities

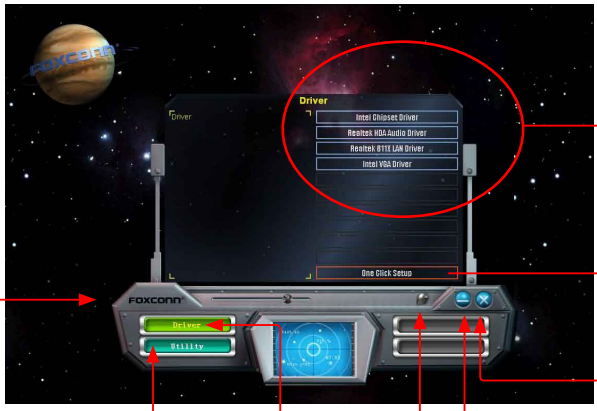
Use these options to install additional software programs. FOX ONE is a very powerful user interface program which allows you to change your system setting without going to BIOS. Some auto features help user to improve (or overclock) your system without being a computer literate.

A. FOX ONE
B. FOX LiveUpdate
C. FOX LOGO
D. FOX DMI
E. Microsoft DirectX 9.0
F. Adobe Acrobat Reader
G. Norton Internet Security

Install driver and utility

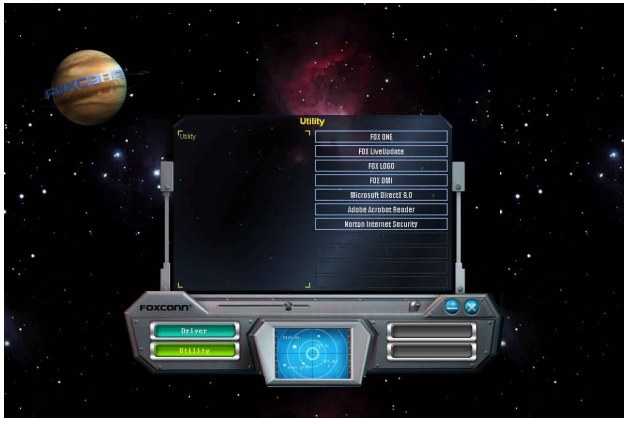
1. Install Driver

You must click "Intel Chipset Driver" to install it first. After that, you can click "One Click Setup" to install all the other drivers left, or you can click on each individual driver to install it manually.



2. Install Utility

You can select the specific utility to install.



FOX ONE

FOX ONE is a powerful utility for easily modifying system settings. It also allows users to monitor various temperature values, voltage values, frequencies and fan speeds at any time.

With FOX ONE, you can :

- Modify system performance settings, such as the CPU and memory bus speeds, CPU voltages, fan speeds, and other system performance options.
- Monitor hardware temperatures, voltages, frequencies and fan speeds.

CAUTION

Depending on hardware support, voltage monitoring and Fox Intelligent Stepping features are optional and only supported in some models. If the option is selectable, it also means the feature is supported.

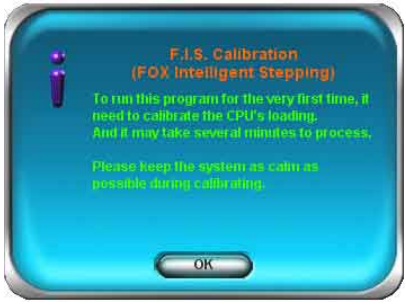
- Voltage Monitoring is supported only in FOX ONE Premium & Deluxe products.
- Fox Intelligent Stepping is supported only in FOX ONE Deluxe products.

Supporting Operating Systems :

- Windows 2000
- Windows 2003 (32-bit and 64-bit)
- Windows XP (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX ONE :

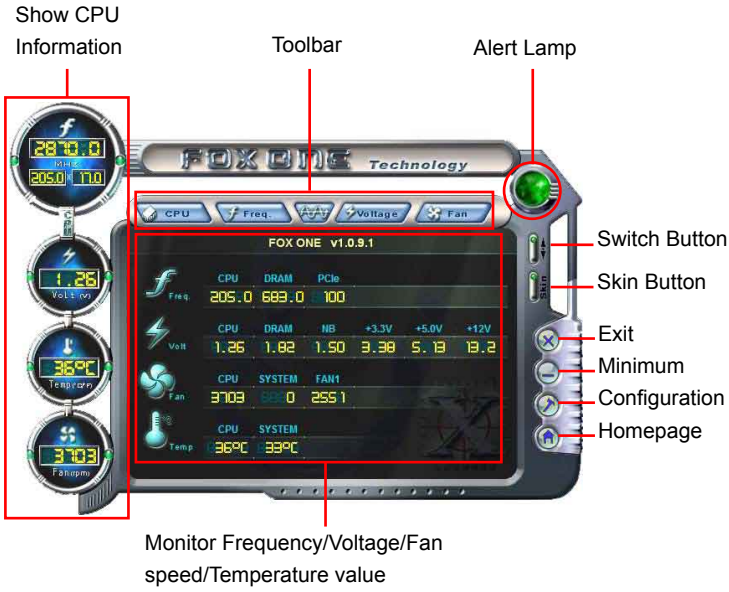
The very first time you run FOX ONE, F.I.S. Calibration function (FOX Intelligent Stepping) will require you to calibrate the CPU's loading. Click "OK" to proceed and start the Utility. F.I.S. is a feature of FOX ONE, which can automatically adjust your CPU clock based on your current system loading.


F.I.S. Calibration
(FOX Intelligent Stepping)
To run this program for the very first time, it need to calibrate the CPU's loading.
And it may take several minutes to process.
Please keep the system as calm as possible during calibrating.
OK

CAUTION

Before you running the FOX ONE program, the system parameters (such as CPU clock, voltage...etc.) are controlled by BIOS settings. After you run FOX ONE, it will take over, and the controlling right will be transferred to FOX ONE. Later, if you exit FOX ONE, then BIOS control will be back again.

1. Main Page



Toolbar

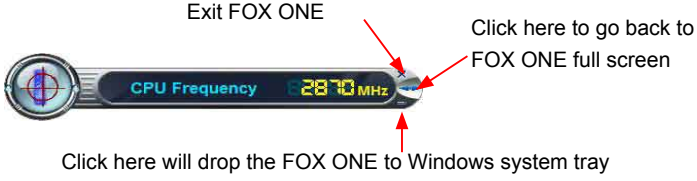
Use the toolbar to navigate to other pages.

Alert Lamp

When the system is in healthy state, the color of alert lamp is green. When the system is in abnormal state, the alert lamp color is red.

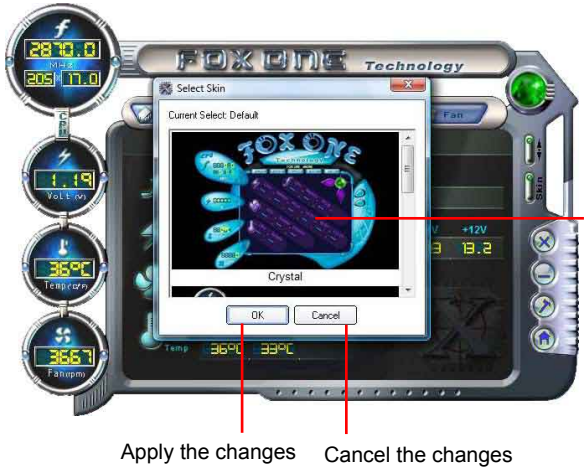
Switch Button

Click this button, it will simplify the whole FOX ONE control panel to a smaller information bar (i.e. Simple Mode) as depicted below, you can drag this bar to any place on your screen to help you monitoring system status.


Exit FOX ONE
Click here to go back to FOX ONE full screen
CPU Frequency
2870 MHz
Click here will drop the FOX ONE to Windows system tray

Skin Button

There are more choices of FOX ONE screen panels. Click this button, you can select your favorite skin (FOX ONE Panel).



Exit

Click this button to exit the program.

Minimum

Click this button to drop the FOX ONE to Windows system tray located at the lower right corner of your screen.

Homepage

Click this button to visit Foxconn motherboard website :
http://www.foxconnchannel.com

Configuration

This menu allows you to configure :

1). Monitor interval (ms) :

This is to define the interval of different messages of system settings which are to be displayed on Simple Mode screen. Minimum value is 1 second.

2). Simple Mode :

To select which message of system settings are to be displayed in the Simple Mode. Messages such as CPU frequency, voltage...etc., they can be displayed one by one in Simple Mode.

3). F.I.S. Calibration (FOX Intelligent Stepping, Optional)

This function will re-calibrate the CPU's loading, and it may take several minutes to proceed. The FOX ONE calibration process will apply different loadings to your CPU, record PWM IC voltage together with the CPU clock running at these loadings, so it can define and estimate within a particular range of system loading, what the CPU clock should be.

Step 1 : Click Calibration icon, a message pops out to ask for continue. Select Yes.

Step 2 : After data is collected, it will ask you to restart your computer now.

Later on, when the FOX ONE program is activated, and F.I.S. feature (in CPU Page) is also enabled, FOX ONE will automatically adjust your CPU clock according to your system loadings. (Loadings are like Power Gaming, Data Mining...etc.)

2. CPU Page - CPU Control

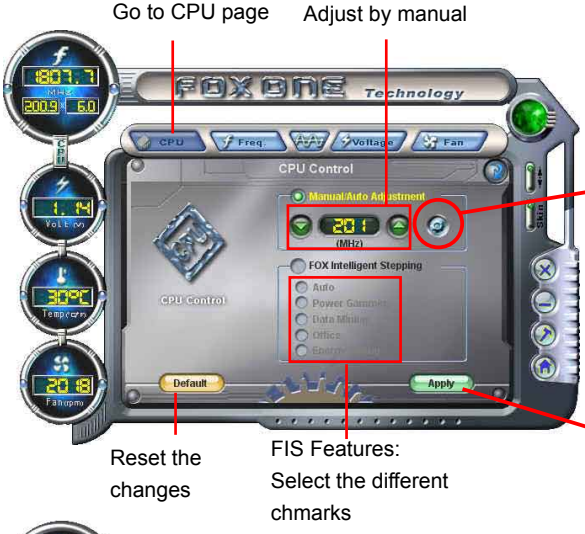
This page lets you select (or overclock) CPU clock to meet the current performance level of the system. The fastest and suitable CPU clock running for current system can be calculated by FOX ONE automatically or manually input by yourselves.

Manual :

You can press the up/down button to adjust your CPU clock.

Auto :

Click this button to let FOX ONE check the highest CPU clock you can use. System will raise the CPU clock step by step until it hangs, you can then push the RESET button on your PC panel to restart the system. When system restarts, run FOX ONE again, it will display a recommended highest CPU clock for you, click <Yes> to apply it.



FOX ONE Technology
CPU
Freq.
Voltage
Fan
CPU Control
Auto OverClock
This function will overclock the CPU automatically.
Note: if the system hangs during the overclocking process, please reset the system by pressing the <Reset> button.
Yes
No
A message informs you to push RESET button later if the system hangs finally. Click Yes to continue.

You can see the system is raising CPU clock until the system hangs.
Push RESET button on the front panel of your system to restart the computer.

Run FOX ONE program again, it will inform you the previous test found that 255MHz is the recommended CPU clock for your system.
Click Yes to apply it to your system.

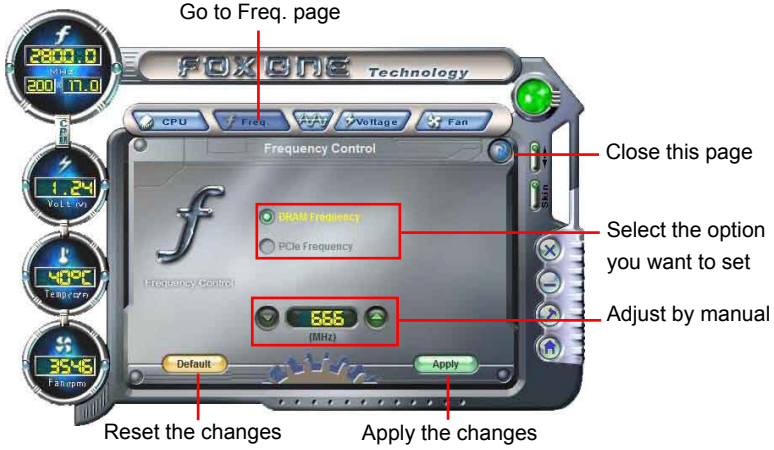
Now, your system is running at a CPU clock of 255MHz.

FOX Intelligent Stepping (F.I.S., Optional)

Select FOX Intelligent Stepping will allow your system to automatically adjust your CPU clock rate based on different system loadings. For example, if you select Power Gaming, CPU clock will be driven to run at its maximum speed. While in Energy Saving, CPU will lower down its speed to a minimum. The four benchmarks - Power Gaming, Data Mining, Office and Energy Saving, the references of their system loading were calculated and defined in the FIS Calibration option of Configuration menu. Select Auto, CPU will automatically adjust its clock according to current system loading.

3. Frequency Page - Frequency Control

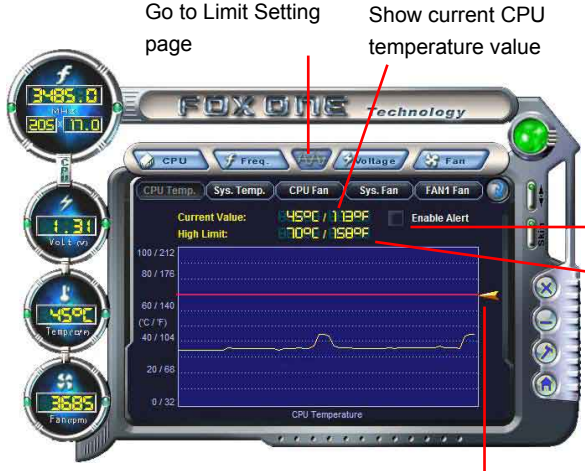
This page lets you set memory and PCI Express frequencies by manual.



4. Limit Setting

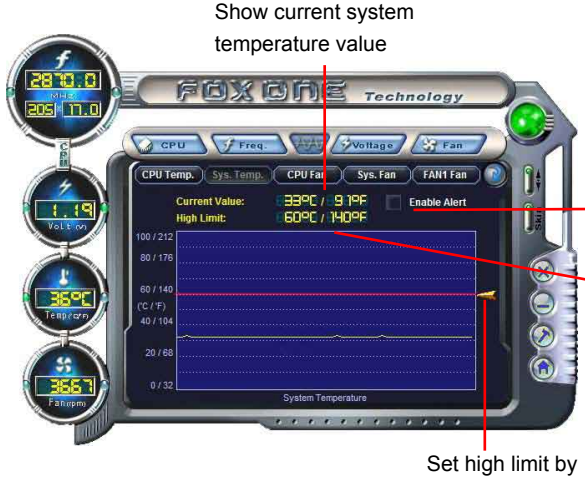
4.1 Limit Setting - CPU Temperature

This page lets you to set CPU high limit temperature and enable the alert function.



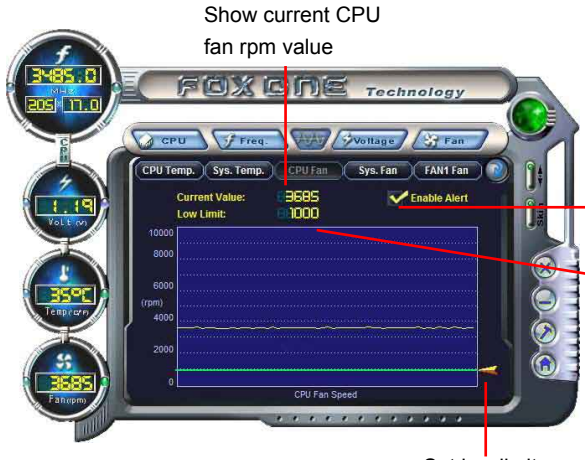
4.2 Limit Setting - System Temperature

This page lets you to set system high limit temperature and enable the alert function.



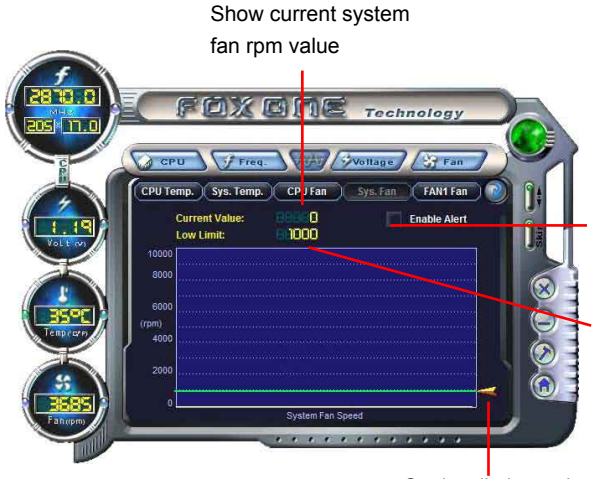
4.3 Limit Setting - CPU Fan

This page lets you to set CPU fan low limit rpm and enable the alert function.



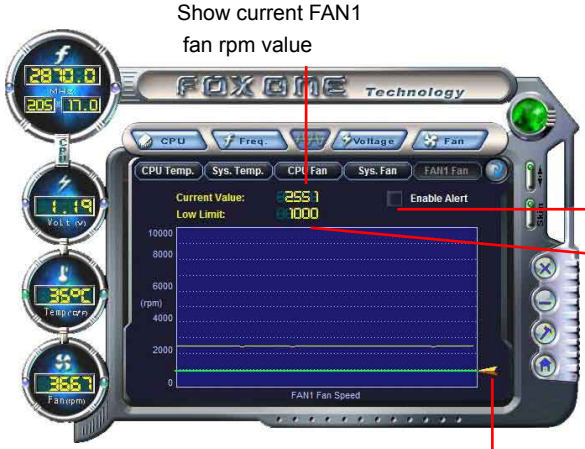
4.4 Limit Setting - System Fan

This page lets you to set system fan low limit rpm and enable the alert function.



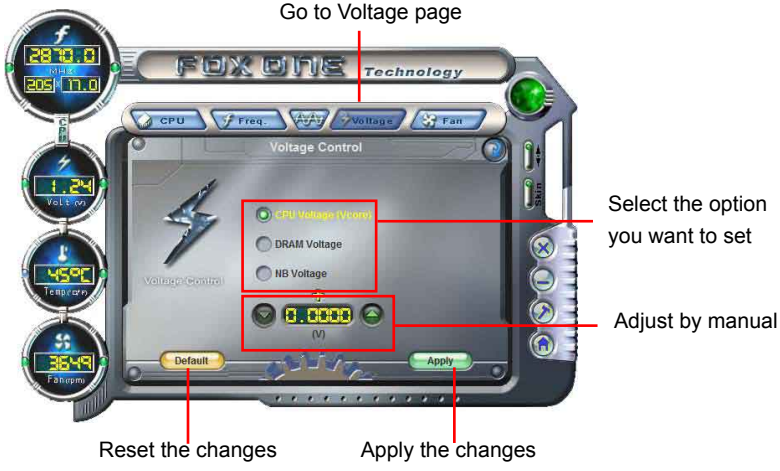
4.5 Limit Setting - FAN1 Fan

This page lets you to set FAN1 fan low limit rpm and enable the alert function.



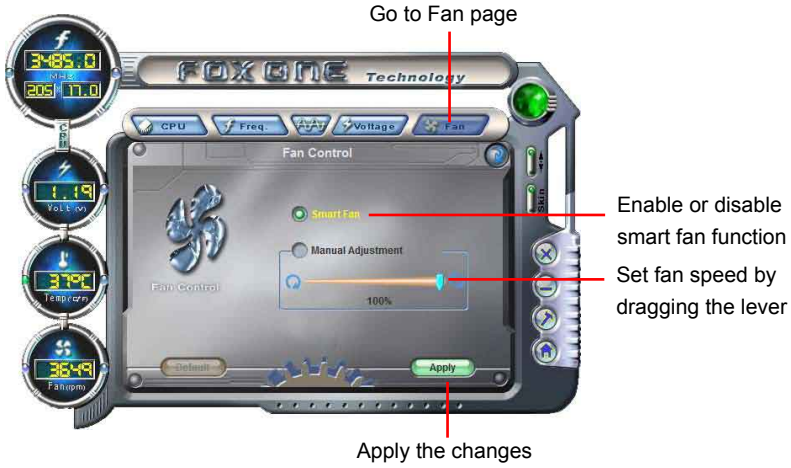
5. Voltage Page - Voltage Control (Optional)

This page lets you set CPU voltage, memory voltage and North Bridge voltage manually. CPU voltage can be stepped up/down by a unit of 12.5mV, while memory is 0.05V/step, and North Bridge is 0.04V/step.



6. Fan Page - Fan Control

This page lets you enable Smart Fan function or set the fan speed by manual.
When Smart Fan is selected, you must use a 4-pin CPU cooler in your system.



FOX LiveUpdate

FOX LiveUpdate is a useful utility to backup and update your system BIOS, drivers and utilities by local or online.

Supporting Operating Systems :

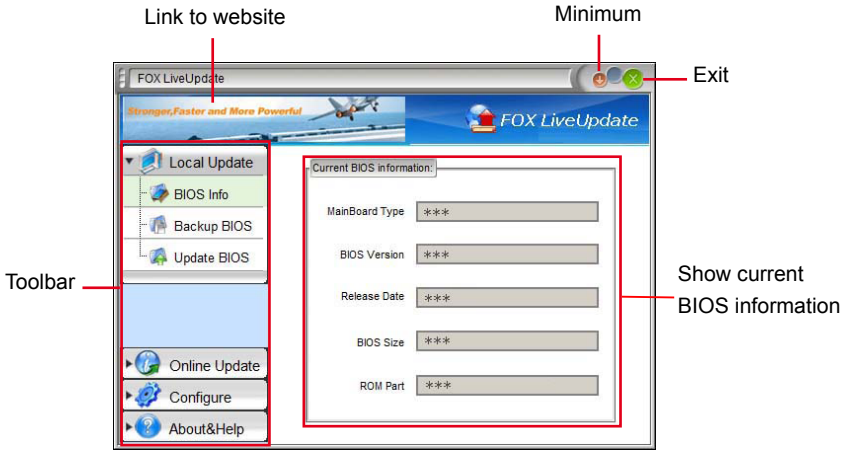
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX LiveUpdate :

1. Local Update

1-1 Local Update - BIOS Information

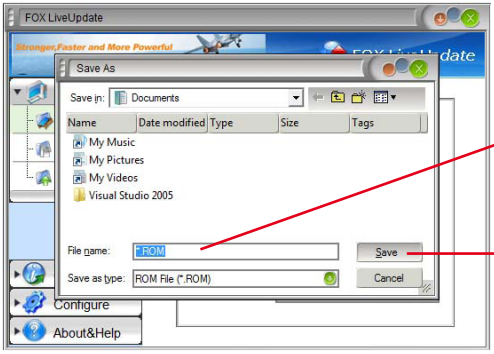
This page lets you know your system BIOS information.



*** : please refer to the physical motherboard for detail.

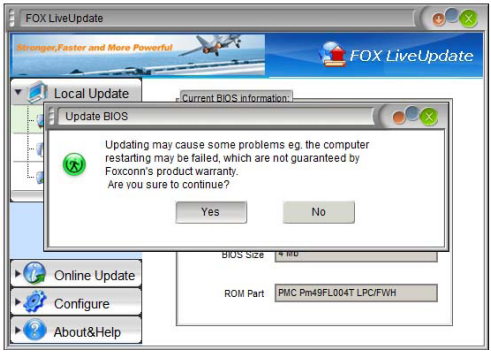
1-2 Local Update - Backup

This page can backup your system BIOS. You can click “Backup”, and key in a file name, then click “Save” to finish the backup operation. The extension of this backup file is ".BIN" for Award BIOS and ".ROM" for AMI BIOS. Default directory is "C:\Desktop\My Documents" in Windows XP and "Documents" in Vista. Make sure you can remember the file name together with the directory which it is stored, prevented that you may need them to recover your BIOS later.



1-3 Local Update - Update

This page helps you to update your BIOS from a local file. After click “Update”, An alert message will be displayed to ensure if you really want to continue, click “Yes” to confirm. A setup wizard will guide you to load a local BIOS file to finish the operation. You must remember from which directory to load your new BIOS file (with an extension of ".BIN" for Award BIOS, ".ROM" for AMI BIOS) before the setup wizard starts.



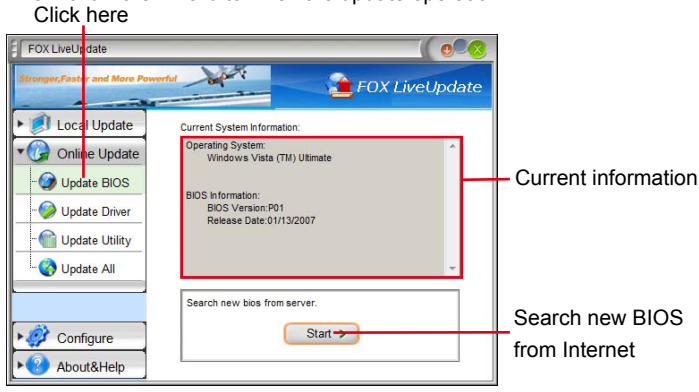
CAUTION

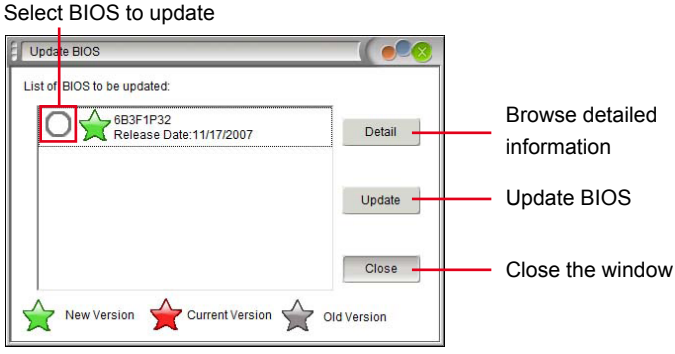
FOX LiveUpdate can automatically backup old BIOS before update. This feature can be enabled in the "Configure-System" setup. Please refer to "Configure-System" section for more detail. The default backup directory is C:\LiveUpdate_Temp, but the backup file name will be automatically generated. It is hard to find it out from a backup directory, and we recommend you using Explorer to check date/time message of this backup file to find it out and write its name down to remember it.

2. Online Update

2-1 Online Update - Update BIOS

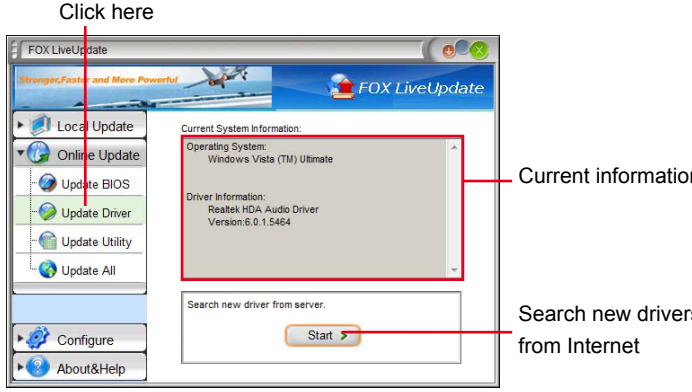
This page lets you update your system BIOS from Internet. Click “start”, it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.

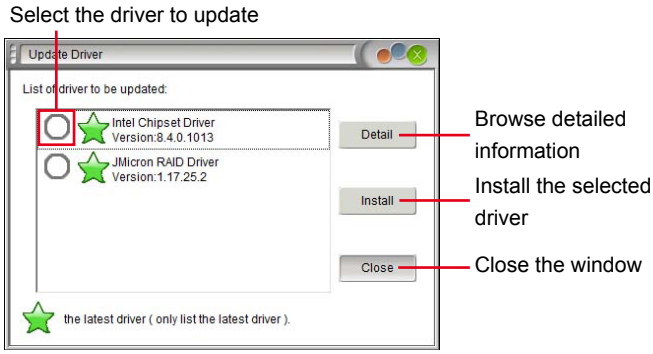




2-2 Online Update - Update Driver

This page lets you update your system drivers from Internet. Click “start”, it will search the new drivers from Internet. Then follow the wizard to finish the update operation.

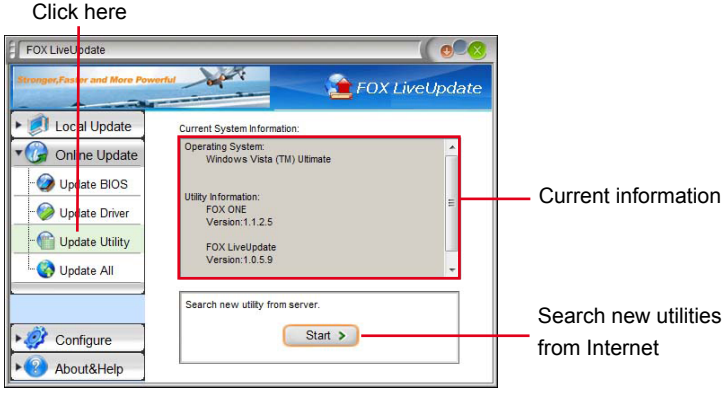


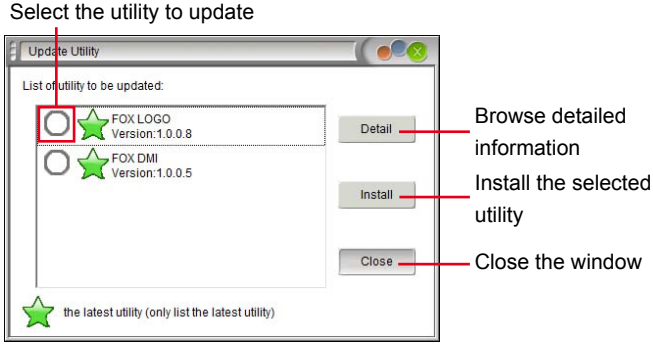


4

2-3 Online Update - Update Utility

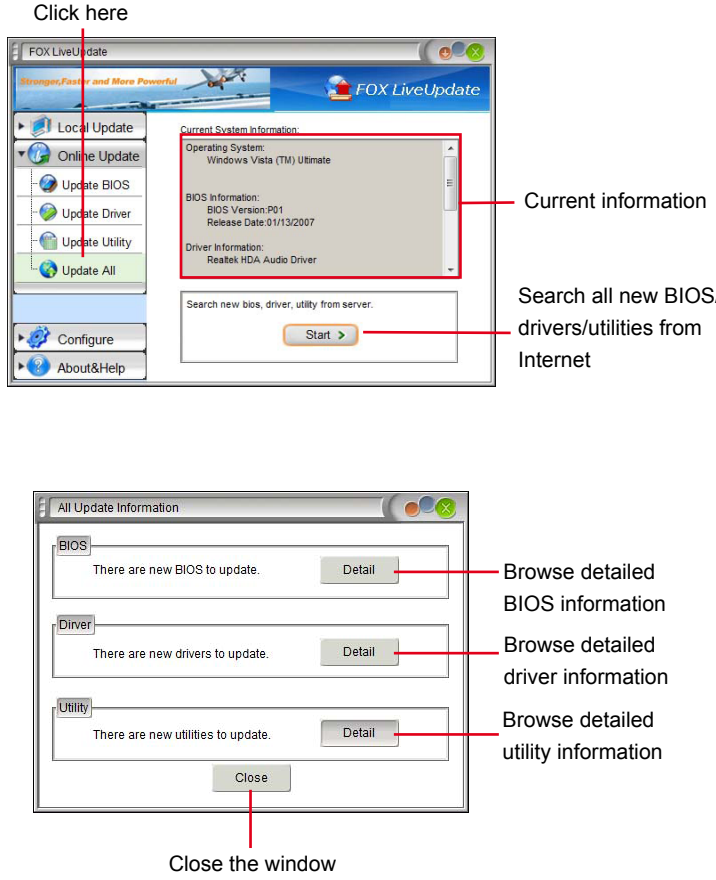
This page lets you update utilities from Internet. Click “start”, it will search the new utilities from Internet. Then follow the wizard to finish the update operation.





2-4 Online Update - Update All

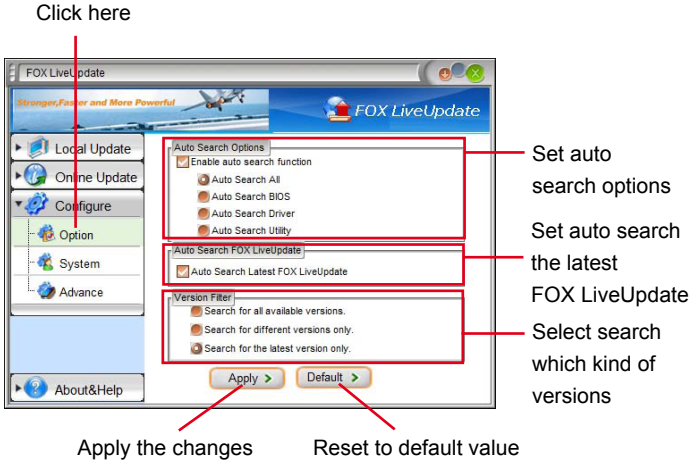
This page lets you update your system drivers from Internet. Click “start”, it will search all new BIOS/drivers/utilities from Internet. Then follow the wizard to finish the update operation.



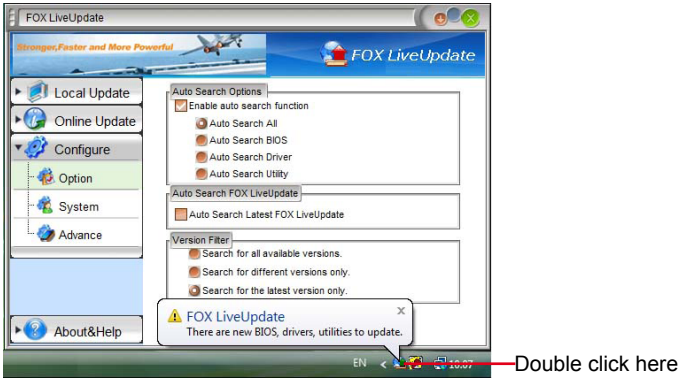
3. Configure

3-1 Configure - option

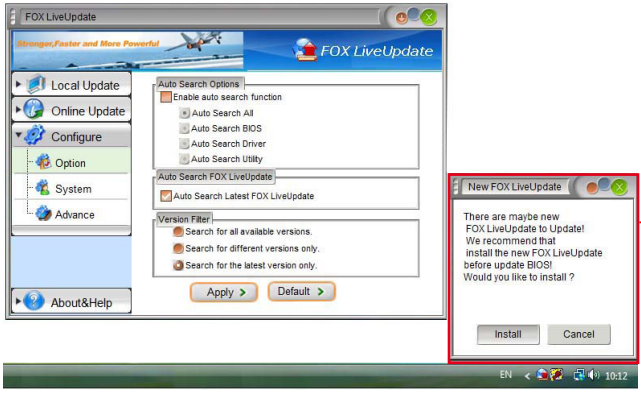
This page lets you set auto search options. After you enable the auto search function, FOX LiveUpdate will start its searching from Internet and if any qualified item found, it will pop out a message on the task bar to inform you to do the next step.



Double click on the icon as show below, you can see the detailed information.



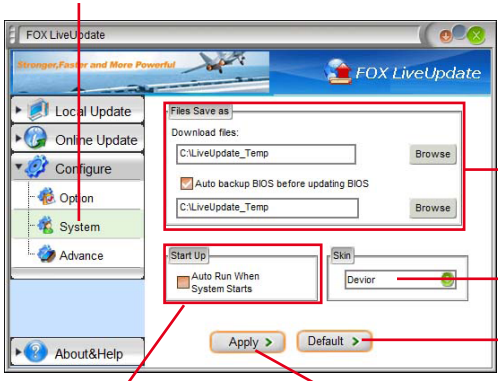
When you enable "Auto Search FOX LiveUpdate", if your FOX LiveUpdate version is older, it will auto search from internet and prompt you to install the new version.



Prompt you to install the new FOX LiveUpdate

3-2 Configure - System

This page lets you set the backup BIOS location and change different skin of the FOX LiveUpdate utility.



Set the location of download files or auto backup BIOS

Select different skin of the software

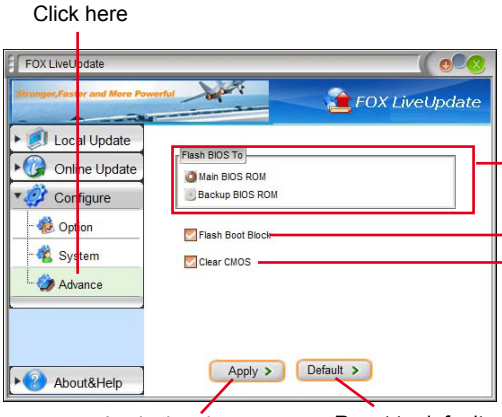
Reset to default value

Determine if the FOX LiveUpdate can auto run when the system starts up

Apply the changes

3-3 Configure - Advance

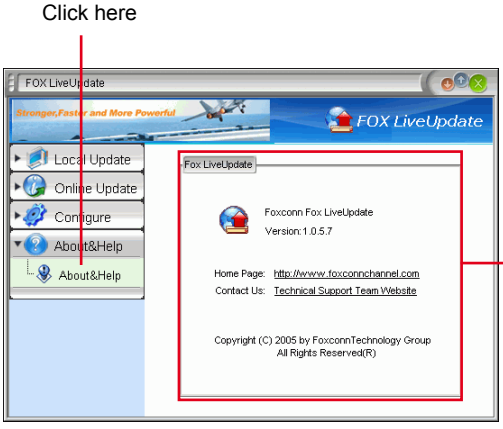
This page lets you select to flash BIOS / Boot Block and clear CMOS. If you choose Flash Boot Block, it means BIOS is not protective, and you must make sure the flash process is continuous and without any interruption.



We recommend that you should better keep the default setting unchanged to avoid any damage.

4. About & Help

This page shows some information about FOX LiveUpdate.



FOX LOGO

FOX LOGO is a simple and useful utility to backup, change and delete the boot time Logo. The boot Logo is the image that appears on screen during POST (Power-On Self-Test).

You can prepare a JPG image (1024x768) file, then use FOX LOGO to open it and change the boot time Logo. Boot time Logo will be displayed if you enable the BIOS "Full Screen Logo Show" setting in "Advanced BIOS Features" menu.

4

Supporting Operating Systems :

- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX LOGO:

Main Page

WARNING!

When you change Logo or delete current Logo, the system will flash BIOS file automatically. During this time, please DO NOT shut down the application and the system, or the motherboard will be damaged seriously.

FOX DMI

FOX DMI is a full Desktop Management Interface viewer, and it provides three DMI data formats : Report, Data Fields and Memory Dump.
With DMI information, system maker can easily analyze and troubleshoot your mother-board if there is any problem occurred.

Supporting Operating Systems :

- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX DMI:

Please operate this utility as the comments shows.

Click here to select the type you want to view.

Click here to select the DMI Data format you need